# THE MARINE RECORD.

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## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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### PROGRESS OF LIGHT-HOUSE WORK.

Lieut. Col. J. A. Smith, Corps of Engineers, U. S. A., in his quarterly report to the light-house board, states that the specifications for station buildings at Braddock Point, N. Y., have been completed. The light will be ready for use April 1, 1896. For the range lights at Grassy Point, O., the illuminating apparatus has been put in place in beacon lanterns. The contract for the erection of a building, woodshed and boathouse has been executed, and the lights will be ready for use June 30. Plans for beacons for Grassy Island range lights, Michigan, have been prepared, and bids are being invited for the second time for their construction. The abstract of title to land selected for the site at South Bass light station, Ohio, has been furnished and has been returned for amendment on account of defects. The lights will not be ready for use this summer. At Sandusky Bay range light station, plans for the foundation have been completed, and those for buildings are being made. The work will be completed September 30, 1896.

Assistant Engineer W. T. Blunt, who has charge of the lake and river work around Toledo, is arranging to put the United States dredges, tugs and scows to work in the river. A cut 400 feet wide will be made from the upper Lake Shore elevator, a distance of 3,500 feet, to the deep water above the Cherry street bridge across the Maumee river. Within this area there is already a 16 foot channel at mean level of the lake, through nearly its entire length. The shoals are irregular, and considerable work will be necessary. The dredged channel will practically follow the line of the river, connecting with deep water above and below. It is understood that both the Lake Shore and the Ohio Central will connect their wharves with this channel by dredging. The contract for removing the fill has been awarded to John Rooney and will be commenced about May 1. The crib lights now show in both directions, and can easily be distinguished in clear weather six miles away. The new range lights at Manhattan, over 3,000 feet apart, were lighted this spring, and the channel being buoyed throughout, make it fully available both night and day.

Nothing will be done this year with the proposition to remove the Buffalo lightship station to Erie. So says light-house Inspector Jones.

Thomas W. McIntosh has been appointed acting assistant keeper of the Ludington pierhead light station, vice Samuel Marvin, resigned.

### TORPEDO DESTROYERS.

Five new torpedo destroyers built for the British navy by Thornycroft & Co., of London, have developed very high speeds and are considered very satisfactory vessels. They are 201 feet 6 inches long, 19 feet beam, and 13 feet deep. Each has two triple expansion engines, with one high-pressure cylinder, 19x16 inches, one intermediate cylinder 27x16 inches, and two low-pressure cylinders, 27x16 inches. Steam is supplied by three Thornycroft water tube boilers. The newest of these vessels, the "Ardent," had just had her trial trip, and on a 12-hour run of 156 nautical miles, or 13 knots per hour, with an average of 499.1 I. HP., showed a coal consumption of 1.53 lbs. per I. HP. per hour. This includes the steam steering engine and the evaporator for distilling water. The vessel had a draft of 7 feet 4 inches with 170 revolutions per minute, or 786 per mile. Two of the three boilers were worked with natural draft, the working pressure being 180 lbs. The following table shows the results of the speed trials of the five vessels, being the means of six runs on the measured mile. The highest speed was attained by the "Boxer," which showed 29,175 knots per hour as the mean of a three hours' run:

| | Steam pres. lbs. | Revolutions Port. | Revolutions Starb. | Total I. HP. | Air pres. ins. | Speed, knots. |
|---|---|---|---|---|---|---|
| Daring | 191.5 | 389 | 389 | 4.644 | 3 | 28.213 |
| Decoy | 191.0 | 366 | 365 | 4,009 | 3 | 27.641 |
| Ardent | 199.0 | 400 | 396 | 4,343 | 2¾ | 27.840 |
| Boxer | 201.0 | 410 | 415 | 4.487 | 2.6 | 29.080 |
| Bruizer | 204.0 | .... | .... | ..... | 2 | 28.144 |

### SUEZ CANAL TRAFFIC IN 1894.

The report of Consul General Penfield now at hand states that during the year 1894, the number of vessels passing through the Suez canal was 3,352, being 10 in excess of the preceding year, and the receipts from tolls amounted almost to $15,000,000. The number of ships using the canal in 1874—20 years ago—was only 1,264. These figures, compared with those of the present day, show how completely the canal has revolutionized the channel of traffic between the far east and Europe. The largest business year the canal has ever had was 1891, when 4,206 steamers passed through. Not one mercantile ship flying the United States flag entered the canal last year, although many cargoes destined for America passed through in British ships. The detailed record of the traffic in 1894 is appended:

| Nationality. | Steamers. | Tonnage, net. | Traffic receipts. |
|---|---|---|---|
| American | *5 | 3,001.71 | $ 4.826 |
| Austrian | 78 | 178,998 64 | 340,200 |
| British | 2,394 | 6,009,902.98 | 10,948,074 |
| Dutch | 188 | 352,451.28 | 653,400 |
| French | 184 | 463,430.93 | 891,380 |
| German | 294 | 624,555.18 | 1,139,985 |
| Italian | 63 | 119,084,93 | 200,681 |
| Norwegian | 40 | 65,862.71 | 117,833 |
| Russian | 35 | 77,421.38 | 162,938 |
| Spanish | 28 | 82,269.52 | 157,534 |
| Turkish | 33 | 39,395.56 | 107,492 |
| Japanese | 6 | 12,103.56 | 22,790 |
| Portugese | 2 | 672.29 | 1,217 |
| Egyptian | 1 | 810.28 | 1,468 |
| Guatemalan | 1 | 145.02 | 263 |
| Total | 3.352 | 8,039,105.97 | 14,770,081 |

*War ships and yachts.

### NOTICE TO MARINERS.

LAKE HURON.

EAST YAWAS.—MICH.—WRECK NEAR ENTRANCE TO BEANNYER SLIP.—A wreck with 8 feet least water over it is close to the entrance of the Beannyer slip. To avoid it keep close to the south tramway in 14 feet of water.

OSCODA.—MICH.—CAUTION.—It is possible the spars of the schooner John Shaw may yet be standing. This vessel sank in 70 feet about 8 miles off Oscoda.

SAGINAW RIVER MOUTH.—MICH.—WRECK NEAR.—About 800 feet northerly from the can buoy (red) and 50 feet westward from the center of the channel is a wreck forming a shoal. Several vessels have struck this with their wheels.

SAND BEACH.—MICH.—WRECK NEAR J. JENKS & CO.'S WHARF:—A small part of the wreck of the Col. Bracket lies about 300 feet south of J. Jenks & Co.'s wharf. Least water 10 feet.

### NEW YORK CANALS TO OPEN MAY 3.

The Superintendent of Public Works has formally fixed upon May 3 as the date for the opening of the state canals, except the Oswego Canal, which cannot be opened until a few days later on account of a break at Bloody Brook. The order for May 3d affects the Erie, Champlain, Cayuga, Seneca and Black River canals.

# NEWS AROUND THE LAKES.

## CHICAGO, ILL.

*Special Correspondence to The Marine Record.*

Palmer, Cook & Calbeck chartered the steamer Nicaragua for wheat to Kingston at 2½ cents.

P. H. Fleming & Co. chartered the steamer City of Berlin for corn to Port Huron at through rates.

Capt. Thos. J. Higgins has been given charge of the steamer Albert Soper, vice Capt. James Hogan resigned.

The steamer W. H. Wolf with coal from Buffalo was the first one to make the round trip from and to this port this season.

The Chicago Towing Companies have fixed their rates for this season at 40c off for steamers and barges and 30c off for schooners.

The Lake Carriers' Associations' shipping office at this port has been removed to 10 Sherman street, where they have much larger rooms.

C. W. Elphicke & Co., chartered the steamer S. J. Macey, barge Mabel Wilson, steamer Hiram W. Sibley, and barge Twin Sisters, all for corn to Buffalo at 1¼ cents.

Capt. John Prindiville chartered the steamer C. H. Green for corn to Kingston at 2½ cents, steamer C. H. Green and barges Our Son and Genoa for lumber, Duluth to Chicago.

W. M. Egan chartered on Saturday the steamer J. C. Gilchrist and barges Verona, S. H. Foster and H. D. Alverson for wheat or corn at shippers option at 1¼ cent to Erie or Buffalo.

The steamer Hiram W. Sibley when going up the river collided with the new tug Zenith and broke about 15 feet of her rail, also her plank sheer and covering board abreast of the engine room.

Capt. Rube Cassidy left here on Sunday, with a crew, on the schooner Waukesha, for Ludington, to take the schooner D. S. Austin to Manitowoc where she will undergo repairs at Burger & Burgers shipyard.

The No. 5 Co.'s tugs Calumet and D. G. Helm towed the barges W. S. Bacon and W. S. Crosswaithe to Milwaukee, and returned with the barges Verona and D. H. Alverson from Milwaukee and S. H. Foster from Racine to load grain at this port.

J. G. Keith & Co. chartered the steamer Neosho for corn to Erie at 1¼ cents; steamer P. J. Ralph and barge Harold for corn to Kingston at 2½ cents; the steamer Mary McGregor for oats to Port Huron at one cent; steamer Marion for corn to Kingston at 2½ cents.

One of the oldest subscribers to THE MARINE RECORD in this city, wishes a reply to the following question: "What is the length of the lock from metre to metre in the old Welland canal and the name of the longest schooner from stern to taffrail that ever went through the lock."

J. J. Rardon & Co. chartered the steamer Shenandoah for corn to Buffalo at one cent; steamer Geo. F. Williams for oats to Buffalo at one cent; barge Moravia for wheat to Buffalo at 1⅛ cents; barge Plymouth for wheat to Buffalo at 1¼ cents barge Scotia for corn to Buffalo at 1⅛ cents.

At Miller Brothers shipyard the yachts Idler, Rambler and Chicago were in dock for bottom cleaning and painting, the schooner G. W. Naghton for recalking bottom, the schooner Four Brothers for some new bottom plank and re-calking; the steamer Glenn to have wheel fastened, the steamer H. W. Williams for holding down bolts and sea cocks.

Capt. W. M. Dulac of Mount Clemens was in Chicago Tuesday. He built during the winter a passenger steamer 83 feet over all, 16½ feet beam, 5 foot hold, engine, steeple compound 8 and 16 by 12, boiler 5 by 6 allowed 120 pounds steam. She has a double deck and will carry about 250 passengers and will be used as an excursion steamer at Mount Clemens. Capt. Dulac also gave the barge Alvina a partial rebuild.

The steamer J. C. Gilchrist loaded with grain, drawing 16 ft. 6 in., forward 14 ft., 10 aft, when going down the river Monday night to take on 150 tons of coal at the C. slip brought up on the La Salle street tunnel, three tugs pulled on her for a couple of hours but failed to release her. She was released Tuesday morning after having been delayed about 12 hours. She will tow the barges H. D. Alverson, Verona and S. H. Foster to Erie.

Thos. Bagley, yacht builder, has built a schooner yacht for T. W. Hoyt, T. C. Gere and John Kreer, who intend to take her down the Mississippi to New Orleans and along the west coast of Florida to Key West and Havana. They will probably spend part of the summer with Mr. Evans at San Domingo. Mr. Kreer will write specials for some of the Chicago papers from interesting points along the river towns which were famous before the days of railroads and from the islands which are becoming resorts for people who are interested in finding a climate suitable for their health.

The fine new tug Zenith built by E. W. Heath, Benton Harbor for Walter H. Singer of Duluth, Minn., arrived here Sunday. Her dimensions are 95 feet over all, 20 feet beam, 11 ft. 6 in. hold. Engine fore and aft compound 18 and 36 by 30, Marine boiler 9 by 14 allowed 145 lbs. steam pressure, both built by the Montague Iron Works Co., Montague, Mich. She also has a hydraulic steerer made by the Queen City Engineering Co., Buffalo and one of the American Ship Windlass Co.'s steam windlasses, also a powerful search light. She is a well built tug and will hail from Duluth.

## BUFFALO, N. Y.

*Special Correspondence to The Marine Record.*

The vessel brokerage and insurance firm of A. Clark & Co., 60 Main street, are on deck for business, Capt. John B. Hall, late Cleveland manager of the whaleback fleet having gone into partnership with Capt. Alex Clark. Both members of the firm are thoroughly known and unusually well liked by masters and owners of vessels, and the business of the firm is certain to be a very prosperous one this season.

The Western Elevating Association has issued the following card: On all grain received on and after April 15, until further notice, the charge for shoveling, etc., and storage, will be as follows: For elevating, receiving, weighing, etc., per bushel, ⅝c; for storing each ten days or parts thereof, per bushel, ¼c. All accrued elevating and storage on grain remaining in store on April 1 in each year must be paid to that date on or before ten days after the opening of canal navigation following, under penalty of ½c per bushel additional storage if not paid on that date. Above storage to be paid by the grain. No grain wll be received for transfer.

Hingston is building two tugs. One of them is 60 feet long, 17 feet beam and eight feet deep. She will have a compound engine and is to tow sand barges for Carroll Bros. The second tug is for canal towing. She is 48 feet long, 11 feet beam and 5½ feet deep.

Last week was rather quiet so far as lake receipts are concerned. Incoming vessels delivered 803,000 bushels wheat, 286,800 bushels corn, 518,010 bushels oats, 115,000 bushels barley, 17,300 barrels of flour, and 3,000 sacks millfeed. Shipments during the week were: Coal, 18,750 tons; cement, 13,270 bbls; salt, 7,289 bbls. and sugar, 14,960 bbls.

Tonawanda lumber dealers and handlers had a meeting last week and all differences were adjusted, insuring a prosperous lumber season there. The working men are to be paid pro rata, and the dealers have never had any intention of putting into force any plan of work that would result in a loss to the men.

Sloan & Cowles, who own the excursion steamers Puritan, Pilgrim, Eldorado and Vision, have formed a combination with William J. Zeigle, president of the White Line Excursion Co., whereby Sloan & Cowles will control the steamers Idlehour and Riverside. It is intended to run some of the boats down the river to Sheenwater and Eldorado (Sour Spring Grove). Extensive improvements will be made at both resorts. This arrangement places all of the new excursion boats, except the Columbia, under one management.

The board of engineering officers will not be in Buffalo before May 27th. They were ordered by the Secretary of War to examine and report as to the proposed extension of the outer breakwater.

Coal shipments for April, 1894, amounted to 102,997 tons; for the same month this year they foot up but 27,640 tons. Besides a considerable amount of general merchandise, 14,119 barrels of salt and 116,852 barrels of cement were shipped from here. Of course grain and flour receipts were also very light compared with those of last April. The total of all grain for April, 1894, was 9,888,740 bushels, while this month it was only 3,729,829 bushels. But 32,015 barrels of flour are recorded, against 467,524 in 1894.

## CLEVELAND, O.

*Special Correspondence to The Marine Record.*

Grosse Point ought to be deepened at once as lighterage and tonage bills are more numerous there than anywhere on the lakes.

Michael Mullen, shipping master of the Union for Lake Firemen, died suddenly, Friday morning, at his residence, 15 Main street. The funeral occurred at St. Malachi's Saturday.

A state naval reserve is coming to the front in Ohio, this port being the point on enrollment. A naval reserve ought to be national though to be of any moment, still it is better State than none at all.

Chartering is quiet and with the strike in coal mining circles it is likely to remain so until a settlement is arrived at. Large and mine owned tonnage is taking the lead, outside vessels are at a discount.

Local inspectors of steamboats in the several districts are the arbiters of the kind of bells which schooners or consorts may carry. The size, metal, sound, etc., are entirely in their hands or at their judgment.

The Cuddy-Mullen Co. are away ahead of the other fueling companies in building a dock out into the outer harbor. This departure may be credited to Mart Mullen, who is a hustler and endeavors to give his patrons the best service possible.

With the sale of the Wadena this week it is not unlikely that the Wilson Transit Co. will contract for large new tonnage either steam or tow in the near future. With the powerful fleet of steamers now in the Wilson Line a few large steel tow-barges as consorts ought to be a paying investment.

The Menominee and Mutual lines of steamers, of which Capt. Geo. P. McKay is ship-husband, are now in commission and rushing for all there is in this season. Capt. McKay will also manage the steamers Globe, Parks, Foster and Ira Owen.

Lake stewards formed an organization at this port during the week, and opened a reading-room at the corner of W. River and Main streets. The question of wages is to be a debarred subject, each member being free at all times to engage and work for any terms that he may elect.

Some transfers of vessel property have come to light this week. Captain William S. Mack, W. W. Becker, and other stockholders in the Lakewood Transportation Co. completed the purchase of the schooner Wadena from the Wilson Transit Co. The Wadena was built at the Quayles' yard in 1887 and rates A 1. She carries 1,600 tons from Lake Superior and is a trim schooner in every respect. She will probably tow behind the V. H. Ketchum this summer, in company with the schooner W. D. Becker. The purchase price of the Wadena was $30,000, but her insurance valuation is placed at $40,000. Another transfer which has been consummated for a couple of months past has been announced. Frank C. Goodman and other Cleveland gentlemen have effected the purchase of the steambarge Keystone and the schooner Joseph G. Masten from G. W. Brown, Jr., of Sandusky, F. B. Case, of Norwalk, and others, on private terms.

Capt. W. W. Brown has superseded Mr. Frank Wright as manager of the Cleveland dry dock. Capt. Brown has been a shipmaster for the past 11 years, the greater portion of his time he spent in the Bradley employ. Later commands of Capt. Brown's were the steamers Sheldon, Choctaw and Kearsarge. It can fairly be said that Capt. Brown, although a young man, has a host of friends and he has the manner to hold all he makes while adding to the list. Capt. Brown will make a success of his new undertaking and no better man could have been selected for this important position in the marine work of the port. Capt. Brown is a most unassuming man and after repeated requests he would not give his photograph and synopsis of career to THE RECORD, owing to his modesty in considering the wide circulation of the old established marine paper of the lakes.

## ESCANABA, MICH.

*Special Correspondence to The Marine Record.*

United States steam-boat inspectors, Gooding and Kreuger of Marquette were here Monday and Tuesday.

Steambarge W. D. Arnold cleared on Tuesday of last week, with the first cargo of iron ore this season. She cleared again Saturday evening with her second cargo for South Chicago.

Capt. Bartley who piloted the steamer Douglas from

Gladstone to Alpena, arrived home Saturday.

A steamer will be placed on the route between Gladstone, Escanaba, Menominee, Sturgeon Bay and Manistee the first of May.

Owing to the continued dry weather the rivers are very low, and many of the logging companies have been unable to get their logs down to the mills. The Ford River mills will have to close down within a week, unless rain falls in abundance.

The schooner J. H. Mead while beating up Little Bay de Noc grounded on Portage Shoal Friday morning. She was released and towed to Flat Rock by the tug Delta, where she is now loading lumber.

Arrivals and clearances for the week ending Saturday, April 27. D. W. Arnold, Herschel (lumber), Grace W. Feler (lumber), Newaygo, Massachusetts, Manchester, Maryland, Minnesota, Manhattan, Merrimac, Francis Hinton (lumber), Inter-Ocean and consort Pratt and consort, Annie M. Ash.

There are several gangs of ore-trimmers working at the 3 cent rate.

Lake Angeline, near Ishpeming, was drained at great expense by the mining companies to get at large bodies of ore that were supposed to under-lie it. A few days ago however, the diamond drill which the Lake Superior Iron company had been keeping in operation on their property on the lake bottom, stopped after drilling a distance of 200 feet and the big scheme has been abandoned.

Many of the mines in this section have been loading and sending ore to Escanaba this week preparatory to the opening of lake navigation. It is generally conceded that the output from the Menominee range will greatly exceed that of last year.

The St. Paul company have removed their side-tracks leading to the Chapin mine. The Northwestern will handle the entire output this season, which will increase the shipments from Escanaba, very materially.

The light-house tender Dahlia was through Green Bay last week, setting buoys.

The passenger steamer Queen of the Lakes went on the Gladstone and Masonville route, Monday.

## MILWAUKEE, WIS.

*Special Correspondence to The Marine Record.*

The barge Mantanee is being fitted out with a steam pump and winch at Menominee.

Capt. Andrew, Johnson of Green Bay, has purchased the little tug Annie D., and will engage in miscellaneous towing.

It is reported that a contract to carry 13,000,000 feet of lumber from Green Bay to Chicago at $1 has been closed.

The steambarge J. N. Foster loaded dry lumber at Green Bay city last week for Chicago, at rates said to be $1 12½, the lowest rate paid out of that port in thirty years.

The tug Boscobel and tow barge Noque Bay, have been purchased by the Maddens from F. W. Wheeler & Co., of West Bay City.

The sale of the tug Jesse Spaulding, by Capt. E. S. Minor, of Sturgeon Bay, to Capt. B. B. Inman, of Duluth, has been declared off, and the tug has since been sold to the Tetley Sand Co., of Chicago.

Charles Hoff, of Manitowoc, and Wenzel Seyk, of Kewaunee, have sold a one-half interest in the schooner Lizzie Metzner to Christ. Shoch, of Manitowoc, for $1200.

The Sheriffs Manufacturing Co. have put a new shaft and wheel into the steamer W. L. Wetmore; have shipped a wheel to Manitowoc for the steambarge E. A. Shores; built a pair of engines 14 x 16 for the Green Bay Dredging Co., and have put a new eleven-foot wheel on the steamer Nyack, which has increased her speed.

The steamer City of Marquette, lying at Kewaunee, and owned jointly by Capt. Ackerman and S. W. Champion, has been sold to Marquette parties, and will be taken to Lake Superior at an early date. Capt. Alfred Taylor will have command of the Marquette, which will be placed in the passenger and freight business.

The managers of local transportation companies express themselves as satisfied with the amended form in which the Spenser vessel taxation measure became a law, and all of the vessels controlled by them will be permitted to remain enrolled in the Milwaukee district. Steel vessels are the only ones upon which the new law bears down any way hard, and there are very few of these owned in the district. The Inter-Ocean Transportation company has rescinded its charter action and will remain with the rest.

The revenue cutter Andy Johnson was placed in dry dock this week for repairs. Collector Ross says that the repairs this year will cost the government from $2,000 to $2,500. It will require nearly a month to put her in shape. Collector Ross is of the opinion that the Johnson will have to do service on the lakes for a number of years to come.

Record has been made here of the transfer of the barge Advance by Isaac Stephenson of Marinette, Wis., to F. W. Wheeler & Co. of West Bay City for $2,500, and of the same craft by Wheeler & Co. to Peter C. Smith of Bay City for $3,000.

During the 31 days of March the F. & P. M. No. 4, Capt. Joseph Russell crossed Lake Michigan between Milwaukee and Ludington 32 times, handling full eastbound cargoes and more or less west-bound freight in each run. The distance is 96 miles. The feat is a record breaker, the nearest approach to it having been made in January, 1891, when the No. 4 crossed thirty times in 31 days. The amount of freight handled by the steamers of thc Flint & Pere Marquette Railway line during the present month has not been paralleled in any previous April month since the establishment of the route. The westbound freight taxes the capacity of the two regular steamers, while other steamers of the line have to assist in moving the eastbound freight much of which is grain.

The stationary dry dock at the west yard is occupied by the steamer Omaha for repairs upon her stern bearings. She is also receiving a new smoke-stack. At the south yard the barge Mattie C. Bell occupies the stationary dry dock for new frames forward and aft, some new ceiling, calking, etc.

Sunday morning the schooner Annie O. Hanson carried away a portion of the iron railing of East Water street bridge. The electric current gave out while the bridge was being swung and this brought about the collision. During the afternoon the barge Verona and steamers F. & P. M. No. 2 went in the draw of the same bridge. Things looked wicked for a few moments, but a serious collision was luckily averted.

The steamer City of Charlevoix touched here Sunday on her way from Chicago to Mackinaw Island for the first time this season. In her lengthened and widened form the steamer presents a greatly improved appearance, while the comfort of her cabin accommodations is increased a hundred fold. The main deck of the passenger gangway is now enclosed from the weather somewhat similar to some of the Goodrich line steamers and constitutes a very comfortuble lounging place for smokers. The City of Charlevoix had forty passengers and a full load of freight, including about forty horses. She is booked for two trips each week between Chicago and Mackinaw Island.

## DULUTH AND SUPERIOR.

*Special Correspondence to The Marine Record.*

Standard Oil barge No. 2 will be launced at the Whaleback yard in a few days—probably next Saturday.

The whaleback steamer James B. Trevor has been inspected, and will go to the Mesaba dock, to load ore for Cleveland. The barge company will begin the season with a fleet of twenty-nine boats.

W. P. Walsh, proprietor of the Occidental hotel, has secured contracts for handling all of the work, or nearly all, that is handled at this port by 'longshoremen. His contracts cover everything in the line of frelght handling at the docks except coal and lumber, and, based on last year's business, will mean the expenditure of $200,000 for labor. The most important contract is the one for handling the lake and rail freight for the Eastern Minnesota Railway company.

The steamer Ford has been chartered for the season to carry barrel staves from the St. Clair River to the head of the lake. On her return trips she will take pig iron from Ashland.

Harry Peabody has been retained by the government to attend the beacon lignts along the natural entry durinh the coming season. Mr. Peabody has held this position for several years.

Two of Williams, Dougherty & Upham's dredges are now at work deepening a place for the foundations of the four piers on which will rest the draw of the new Duluth-Superior bridge. The work will be completed in sixty days.

The steam ferry Hettie Lloyd has been sold by Anna L. Hanson to Capt. A. C. Mayo, the consideration recorded being $925.

Capt. B. B. Inman has succeeded in raising the sunken steamer Oego, in the Fifth avenue slip.

## ASHTABULA, O.

*Special Correspondence to The Marine Record.*

Last year's ore had pretty well dwindled away by the time the first cargoes of the season arrived down. The receipts at this port promise to be larger than ever before.

The fishing tug Hope was finally sold by the United States marshal, but now there is some controversy as to the division of the proceeds among the creditors, which must be decided by the court.

The fishing tug F. D. Davis, which was sunk March 5 by the firemen in their efforts to extinguish a blaze, was raised last Wednesday night by J. G. Laird & Sons, who did the work for the owner, H. Parker. The hull was not burned, but the upper works were totally destroyed, and the lower parts of the decks were badly burned. The boiler is ruined and the engine is in bad condition. The cost of repairing her will be about $800.

## SANDUSKY, O.

*Special Correspondence to The Marine Record.*

Della Smith and Elizabeth Vesper now own the schooner Two Brothers.

The steamer Leland, which was libeled last fall and has been in charge of a keeper at this port all winter, has been bonded and released.

The new steamer Arrow was accorded a rousing reception at the islands and this port when she came over from Detroit Monday to go up on the island route. She is the Frank E. Kirby on a smaller scale, and promises to develop great speed. Her cabin is furnished in light mahogany, and her decorations run to green in tint. Prominent Sandusky business men presented her with a handsome grand piano for the salon. The Arrow will carry about 800 passengers.

The little flashing steamer Oggel, belonging to the Sandusky Fish Co., which was seized by the Canadian government about three years ago for alleged illegal fishing, has arrived here. The Oggel has been lying at the Amherstburg dock ever since her seizure. She was turned over to the collector of customs by her captors, who imposed a fine upon her equal almost to the value of the vessel. Her owners refused to pay the excessive fine for the alleged violation of the fishing laws and she has remained in the custody of the collector of customs. The fine has been reduced, and she has been purchased by Col. C. M. Keyes.

## DRY DOCK BUILDING.

Bids were opened in the Navy Department, Washington, on Monday, for completing the large dry dock at the New York navy yard, left unfinished by John Gillies, whose contract was annulled on the 12th inst. by Secretary Herbert on the ground of non-performance.

The Gillies contract was made by Secretary Tracy, November 17, 1892, for the dock to be completed in thirty-two months for $462,619.18, Congress having appropriated $500,000 for the purpose. Gillies has already been paid about $165,000 for excavations he has made, and which are declared of little or no account to any other contractor. Only $297,619 remained to be paid Gillies, who, in 31 months had made little practical advance on his work. Of the original appropriation, $335,000 remains, and unless the dock can be completed within this amount Congress must be called on for the balance. In the meantime, the navy has nearly completed several ships which cannot be docked at or equipped at the navy yard until the New York dock is available.

The bids were as follows: Simpson Dry-Dock Co., $465,566; J. B. Westerbrook, $409,988; Colin McLean, $377,000; Thomas & August Walsh, $370,000.

Secretary Herbert, who opened the bids in person, said that he would thoroughly examine the propositions and announce his award subsequently. Reliable contractors like the Simpson Dry Dock Co. are likely to be considered in this important work, although their bid stands highest.

### THE NEOSHO REBUILT.

At the yards of the Milwaukee Dry Dock Co., the steamer Neosho has received a thorough rebuild. She was cut down to the main deck amidships. On sighting her bottom it was found that she was resting on all except five blocks, the center block of the five she was clear of about 5 inches, she was then shored up at both ends and repaired as follows: All new keel and garboards on each side, her entire length, also all bottom plank that was broken or chafed, their butts were cut forward and aft to plank her, and instead of doing it as she was built before they did away with all the light stanchions, stringers and rails, and framed her up to the rail height the entire length, then they put steel plates on the frames on the outside one under the upper shelf piece 142 feet long, ¾ x 24 inches wide, bolted through the plank frame and ceiling, under the main rail outside, also a steel plate the entire length of the boat notched into frames ¾ inch thick, 23 inches wide, planked up to rail with 4 inch, ceiling of same, under rail abreast of outside plate is another plate 24 inches wide, ¾ inches thick, same length as outside, outside the 4-inch planking two steel plates are through bolted, outside stringers under main rail are 9 inches wide, 5 inches thick entire length of boat, main rail 18x5 inches, put on in two pieces, entire new main deck, and all other deck work, also new floors. The former keelsons that were left in, to put them beyond any question as regards strength, were fixed in the following manner: The center butts on the body of the vessel where strained were strengthened by putting on steel plates 12x¾, running 20x25 feet each side of the butts, on top of floor keelsons, an entire new floor as follows: One layer of 1-inch boards and on top of that 3-inch oak planked athwart ships. She has two steel plates 16x¾ on rider keelsons from bed plate of engine to deadwood forward, also new rudder stock and rudder. She was refastened thoroughly, one ⅞ bolt to each frame, each strake from below bilge to rail, as usual it was necessary to ream out all the oakum possible, both inside and out, so as to straighten vessel and after laying in the dock eight weeks, recalking was commenced in the following manner, gave her all the oakum she could take, which consisted of eight threads inside and outside. She has 11 inches of plank on edge, 6-inch ceiling and 5 inches of outside plank. Repairs to engine. Had the high pressure cylinder bushed and changed in size from 30 inches to 27 inches. The boiler house received repairs, also the cabins, etc. Her present owners are C. H. Starke, Wm. H. Myer, Joys Bros. and John Fitzgerald.

### WORTHY OF IMITATION.

Honorary Aid Circles are being organized in every county in New York by the Ladies' Aid Volunteer Lifesaving Corps of New York Inland Waters. The object of these honorary circles is to enable a more effective extension of the work to be made during the season of 1895. Every year a large number of lives are lost in the interior waters of the state because of the want of proper care, information and life-saving appliances.

A circular letter has been addressed to a large number of women in the state by Mrs. Henry A. Powell, president of the corps, and Fanny S. Kennedy, secretary of the corps. It asks the women of New York state to interest themselves in the work which seeks especially to protect those who are spending their summer vacations on the lakes and rivers of the state. Last year 80 medals of honor were awarded for heroic work in saving lives. The corps has organized over 400 boat crews or lifesaving stations in the state.

It is especially desired that the women arouse the interest of the boatmen and yachtsmen in this work; also that the names of heroic rescues during the coming season be fully reported to the society, in order that they may be properly honored and rewarded. Over 100 lives were saved during the last year because of the agencies of this volunteer corps. The offices of the corps are at Nos. 63 and 65 Park Row, New York.

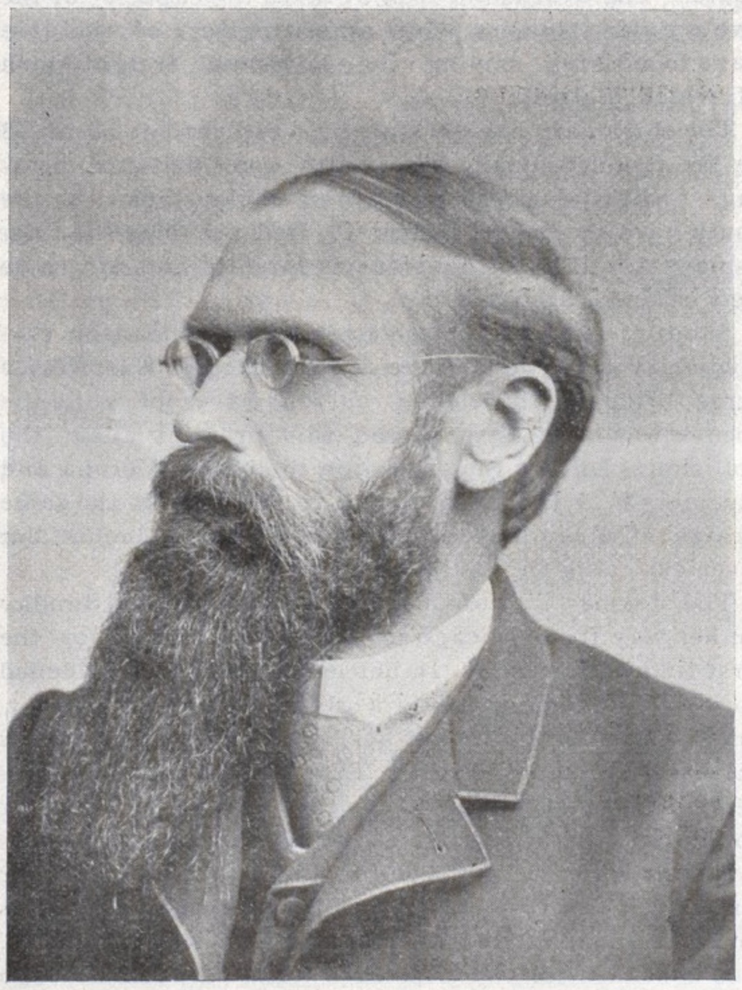
### LAKE SUPERIOR LIFE SAVERS.

The crews of Life Saving Stations Nos. 9, 10, 11 and 12, Lake Superior, were examined by Assistant U. S. Marine Surgeon H. R. Floyd at Sault Ste Marie last week as to their physical ability to serve in the lifesaving service. All the members passed a first-class examination and departed Friday morning for their respective stations. They are as follows: Station No. 9—Captain S. F. Bernier, A. Lafourd, W. Humes, Walter Cleary, Wm. LaLonde, A. Barclay; Station No. 10—Captain R. M. Small, James McGaw, John Stewart, S. M. Cook, Louis Paccaloni, John Webster, Duncan McCormack, Andrew Bruce; Station No. 11—Captain T H. McCormack, James McKenzie, G. Burshon, G. D. Shine, James Kay, Louis Fisher, Nelson Brown, R. E. Davis; Station No. 12—Captain J. H. Frahm, John Chelson, E. B. Duffy, Ed. Verberger, Malcolm Pattison, Bert O'Neil, Fred Small, Frank Lytle. All will serve but Louis Fisher, who has accepted a position on the lake survey under E. E. Haskell; and James McKenzie, who has resigned to take the mail carrying contract between Eckerman and Whitefish Point.

### OBITUARY.

WILLIAM WILSON.

There were few more conscientious men in the vessel business than the late Mr. William Wilson, of the Wilson Transit Co., brother of the general manager, Capt. Thos. Wilson. Standing high in the esteem of all with whom he was brought into contact, the expression of sympathy was general last week when it became known that he had passed peacefully away on the 24th of April.



(THE LATE) WILLIAM WILSON.

Mr. William Wilson was born in Pathhead, Fifeshire, Scotland, in 1837. When he was five years of age the family moved to the North of Ireland on account of a transfer of stations in the Custom House department, of which his father was a member. At the age of sixteen William wended his way across the Atlantic to Philadelphia, Pa., and sailed for some years in the New England coasting trade, chiefly between New York and his adopted home port. About 1860 he went to California, and for several years was engaged in the flourishing trade at that time carried on between the San Francisco and Sacramento. By leading a careful upright life Mr. Wilson was enabled to accumulate quite a sum of money during his stay in California, most of which, however, was lost through the failure of the bank in which he was a depositor, and he was, therefore, compelled to begin anew. Shortly after the foregoing experience Mr. Wilson returned to Philadelphia, and the entire family moved to Sugar Island, St. Mary's River, Mich., where they occupied fertile and valuable farming property.

About thirteen years ago Mr. Wilson came to Cleveland and entered the office of the Wilson Transit Co., of which his brother, Capt. Thomas Wilson, was, as he still is, president and general manager. Mr. Wilson acquired a considerable interest in the company, which he held up to the time of his death.

Mr. Wilson passed away in the prime of life, and it was a surprise to many to learn that he had not been enjoying his usual good health for the last few months. He made a trip to Europe in 1892, in company with some of his best friends, and enjoyed the tour so much that he came back hearty and vigorous, ready for another long siege at business. Part of the winter of 1894 he spent in California, and he contemplated taking another tour this year, but his plans were frustrated in this respect through his sudden illness.

Since living in Cleveland Mr. Wilson has been an honored member of the Euclid Avenue Congregational Church, and was known by all as a consistent Christian man. He was charitable to a fault, both in the matter of giving substantial assistance where he thought there was need, and in his estimates of the character of his friends. It can safely be said that no one ever asked assistance from Mr. Wilson that did not receive it if the case or cause was a worthy one, and this feature of his sterling character was borne testimony to by one of the ministers officiating at the funeral, who stated that in the course of his labors he had found many deserving persons being generously assisted by an unknown patron, who on further inquiry proved to be the departed brother.

Mr. Wilson is survived by his wife, two sons and one daughter. The funeral services were conducted at his late home on Saturday last, April 28, by Rev. Dr. H. M. Ladd, his late pastor, assisted by Chaplain Jones, of the Floating Bethel, and the David Wilson Christian Endeavor Society. The pall-bearers were selected from among his old friends and associates—William Chisholm, Sr., Capt. A. P. Wood, of Duluth, Charles Beatty, of Buffalo, Charles Paul, E. G. Stranahan, and Capt. Ed. Morton.

### TO CHANGE STEERING ORDERS.

A revision of the International "rules of the road at sea" is demanded by Vice-Admiral Batsch, of the German navy, in a paper lately published. He particularly calls attention to the fact that to give the command "starboard" to the man at the wheel according to these rules really means that the bow of the ship is to turn to "port." This command had its origin at a time when tillers were used, and no longer applies to vessels above the size of a fishing boat. The French and German, and some other navies, have discarded this absurd use of the order; but it still is in use in the English and American navies, and on nearly all merchant ships. As employed on German and French naval vessels, the order now applies to the direction in which the ship is to turn, and not to the wheel.

### BREAKWATER CONSTRUCTION.

At a meeting of the Buffalo Society of Natural Sciences Friday evening, Mr. Emil Mueller of the United States Engineers' Office gave a valuable lecture on the history of the Buffalo breakwater, and on the history of the breakwaters in the harbors of the Great Lakes. Mr. Mueller describes minutely how concrete was used in harbor work breakwater construction. The lecture was based entirely on observation and personal experience, and was illustrated by a series of charts and drawings. Mr. Eben P. Derr read an interesting paper on the "Progress of Government Determination of Lake Currents."

### STRUCTURAL WEAKNESS OF STEAMERS.

In a paper read before the Institute of Marine Engineers at Stratford, England, the type of cargo carrying "tramp" steamers now being built was roundly condemned, and they were characterized as mere money-making machines, built to carry the maximum of cargo on the minimum of cost. One speaker stated that shipbuilders made a great mistake in building ships, as they put the strength in the wrong place, and drew attention to the fact that owing to the space occupied by machinery, boilers and bunkers, the weight of the cargo was concentrated in the ends of the vessel, and, considering the vessel as a beam loaded at the ends, he was of opinion that the upper strakes should be very much stronger in order to compensate for this. Attention was also drawn to the injurious strains set up by having the machinery placed aft, and the chairman in his summing up gave the results of his experience with several oil-tank steamers which, through having the machinery aft, had shown considerable signs of working, and had to be strengthened in consequence.

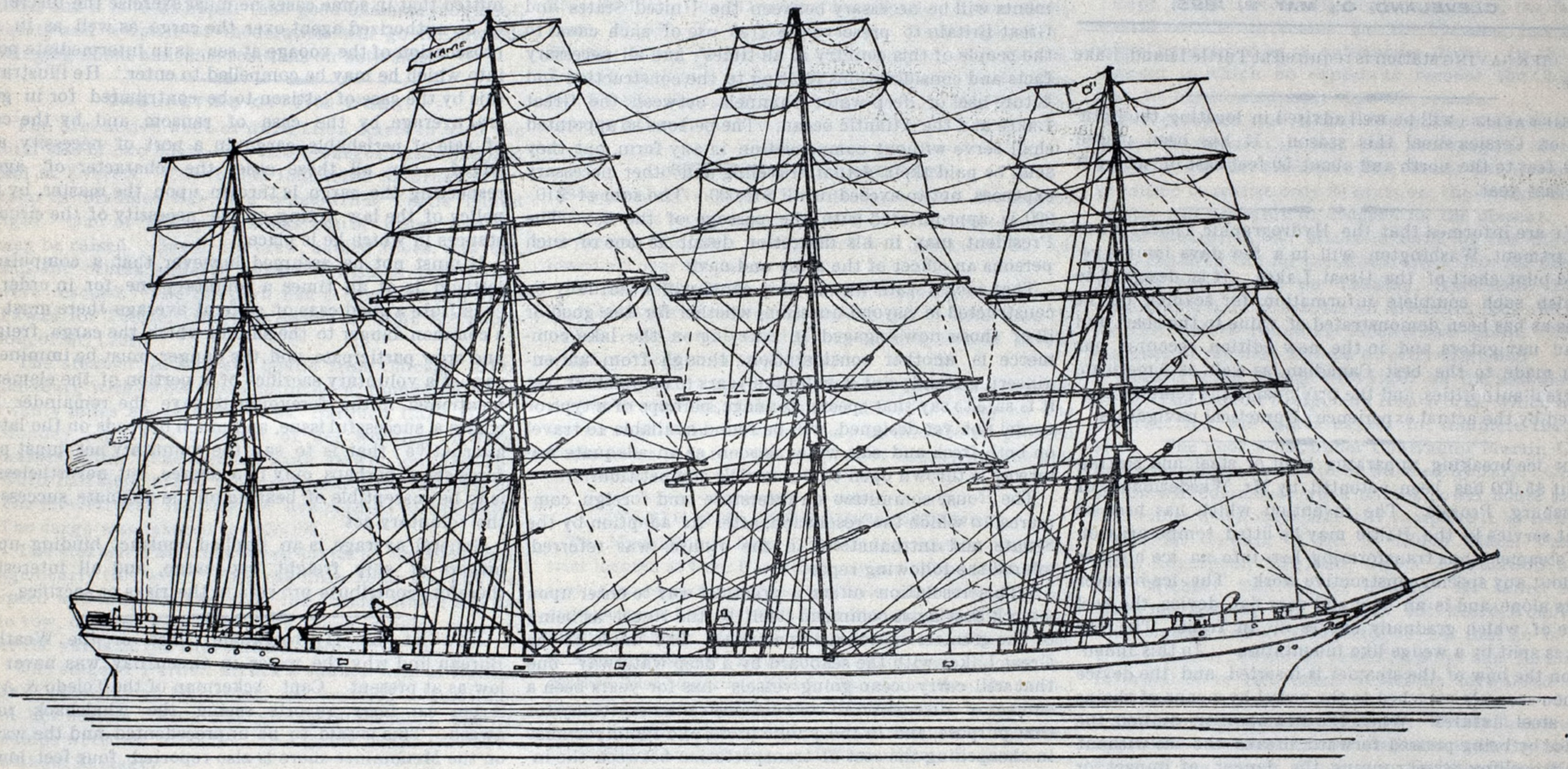
## A FOUR-MASTED STEEL SAILING SHIP.

ILLUSTRATED.

Large steel sailing tonnage commenced to be built a few years ago to counteract the general tendency to build nothing but steam. Our illustration, kindly furnished by W. J. Wood, naval architect, shows an outline drawing of the ship Falls of Earn, built at Greenock, Scotland. Her registered dimensions are 302-2 feet in length, 42-1 beam and 24-5 depth, 2279 tons net and the weight of ship complete 1660 tons. It may be noticed that all of the lower masts are much the same length; viz. 90 feet by 32 inches in diameter, except the jigger mast which is 85 3 feet by 30 inches in diameter. The rake of the masts are as follows: Fore ¾ inch to the foot, Main ⅞, Mizen 1 inch, and Jigger 1⅛ inch. The stave of the bow-sprit is 4¼ inch per foot the foremast being stepped far enough forward to obviate the necessity of a jibboom.

It would not be of general interest to give the dimensions of each spar etc., in this article, or the names of the different sails, further than to say that she is an eight top-gallant yard ship, with main and mizen skysails and the lower yards, excepting the jigger, being 85 feet square the latter being 71 feet 6 inches. The total spread of canvass is 55,520 square feet.

When these ships were first built it was thought by many that at some time in the future they might be fitted with engines and could thus be converted into good sized economical working steamers or at least be furnished with such auxiliary steam power as to make them good paying craft. Few vessels however of this build have been transformed and it may be said that they are the only or the best paying craft under sail to-day, having large carrying capacity, modern equipment and light crew.



STEEL SHIP "FALLS OF EARN."

## FACTS ABOUT LAKE SUPERIOR.

Prof. M. W. Harrington, chief of the United States weather bureau, has been making a study of the physical features of Lake Superior, which is probably the largest body of fresh water on earth. The next largest is Victoria Nyanza, in equatorial Africa, which has an estimated area of 25,000 or 30,000 square miles, as compared with Lake Superiors known surface of 32,166 square miles. Chief Harrington spent several weeks last summer on the north shore of the lake, and is now engaged in collecting information relative to its area, coast line, islands, depths, currents, changes of level, temperature, etc. The islands of Lake Superior have an area of 660 square miles and the bays an area of 1,041 square miles, leaving a total area of open lake water surface of 30,465 square miles. The boundary line over the lake between the Dominion of Canada and United States is 200 miles long. The combined area of of the Great Lakes of the St. Lawrence is 95,275 square miles, and a third of this is formed by Lake Superior. The largest island in Lake Superior is Isle Royal, or the Regal island. It is an isolated and nearly a submerged mountain rising from 1,000 to 1,500 feet from the bottom of the lake. It is the only island of the kind in the lakes, and is only paralleled by isolated and volcanic islands of the oceans.

The drainage basin of Lake Superior is relatively small, and the margin of the watershed is low in all directions, and is generally ill defined. The St. Louis river, which enters the lake at the extreme western angle, is considered the mother stream of the lake and the source of the St. Lawrence. Although the surface of the lake has always stood at its present level, it might be lowered many hundred feet, and the lake would still be larger than her four great sisters, and also be among the largest of the bodies of fresh wates on the earth's surface. If the water sank to the level of the ocean, the lake would still be between one-third and one-half of her present size, with outline practically the same. Otter Head would still exist, and Isle Royal would tower 1,000 feet or more above the water's surface. The deepest point in the lake is about half-way between Otter Head and Keweenaw point, and on a line between the eastern end of Isle Royal and Caribou island. The soundings here was scanty, but the basin with depths of more than 150 fathoms or 900 feet, appears to be an oval area, twenty-five miles long by ten miles broad. This is 300 feet below sea level. Thus after drainage, the lake would not only be large but deep as well.

The water of this lake is remarkable for its extreme purity, very little being added and very little being taken away, but the temperature is so low that a human being exposed to it for any length would not long survive. The temperature is low in winter and moderate in summer. As low as 75 degrees below zero has been registered in winter on the north shore. The climate in this vicinity is essentially northern, as is shown by the temperature of the land and by the vegetation. The soil is scanty but very rich.

J. H. SNELLING and Fred H. Pell have organized the Marine Manufacturing and Supply Co., with store and office at 158 South street, New York, for making and dealing in ship machinery, windlasses, capstans, winches, pumps, brass work, "Monitor" side and deck lights, ship chandlery and engineers' supplies.

## BRITISH IRON AND STEEL EXPORTS TO THE UNITED STATES.

The latest statistics regarding exports of the principal lines of iron and steel products from Great Britain to the United States are shown in the following table compiled from the returns of the Board of Trade, London. These exports for the third month of the present year, and the corresponding month in 1894, are given as follows:

| | March. | |
|---|---|---|
| | 1894. Tons. | 1895. Tons |
| Pig iron | 889 | 665 |
| Bar, angles and bolts | 71 | 143 |
| Railroad iron and steel | ... | 40 |
| Hoops, sheets and plates | 947 | 102 |
| Tinned plates and tinned sheets | 16,907 | 18,743 |
| | 18,814 | 19,693 |

The above table shows that the increased movement of British iron and steel products to the United States is keeping up. The exports during March this year, compared with those of the corresponding month in 1894, show an increase of nearly five per cent. The above table, which the American Manufacturer prints as being the best available, includes the most important lines, but there are several omitted, one being soft steel. In the items given, however, the increase seems to be mainly in tin-plate exports. Comparing the British exports of pig iron to the United States during last March with those for the corresponding month in 1894 a decrease of more than twenty-five per cent is seen. Hoops, sheets and plates show a decrease of 89 per cent. Exports of bar, angle, and bolt iron show an increase of more than one-hundred and one per cent. Comparing the exports mentioned in the foregoing table with the same recorded for February, a falling off of more than twenty-eight per cent in shown. A great part of this decrease is in tin plate, but the difference is caused largely by steel rail exports. During the month of February this year Great Britain sent 3231 tons of steel rails to the United States, while the exports during March aggregate only 40 tons.

The showing of Great Britain's total iron and steel exports to all countries during the month of March was the most satisfactory to British interests that has been made for months past. The total aggregated 205,707 tons, an increase of 47,877 tons on the preceding month. The value of British iron and steel goods sent abroad in march shows an increase of £226,557 compared with the figures of the previous month.

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CLEVELAND, O., MAY 2, 1895.


A LIFE-SAVING station is required at Turtle Island, Lake Erie.

SHIPMASTERS will be well advised in locating the ligthship on Corsica shoal this season. It has been placed 1,000 feet to the north and about 50 feet east of where it was last year.

WE are informed that the Hydrographic Office, Navy Department, Washington, will in a few days issue a revised pilot chart of the Great Lakes. It is designed to furnish such complete information for seamen on the lakes as has been demonstrated of value to the coast and ocean navigators, and in the new edition recourse has been made to the best Canadian, as well as American, nautical authorities, and the principal improvements suggested by the actual experience of practical navigators.

AN ice-breaking apparatus built of steel and costing about $5,000 has been patented by Mr. Weedermann, of Flensburg, Prussia. The invention which has been of great service in the Baltic may be fitted temporarily on any steamer, thus transforming her into an ice breaker without any special constructive work. The ice-breaker floats alone, and is an oval and very flat device, the keel piece of which gradually curves up in front. The rear part is split by a wedge-like indentation. In this indentation the bow of the steamer is inserted, and the device is then securely attached to the vessel by means of chains and steel fixtures. When the steamer is in motion, the device by being pressed forward, breaks the ice without the propelling vessel running the danger of impact or collision. The Weedermann ice-breaker has been patented in this country and it would appear that a few of these temporary structures ought to meet with considerable patronage on the lakes during the early spring and late fall trips. The U. S. consular agent at Flensburg reports that the invention has turned out to be of great service and that ice from one to three feet thick is easily penetrated, though it appears that there was nothing heavier to combat.

THE agreement not to fuel with coal shippers in Buffalo is being strictly upheld by vessel owners and after the proof of extortion reported at the recent annual meeting of the Lake Carriers' Association it is difficult to see how it could be otherwise. So far had some hard coal shippers proceeded along this line of bare faced robbery, that schooners and consorts have been charged for fuel the same as a steamer, otherwise, they would or could not receive a pound of cargo, and, as is well known, the consort should always be ready to start when her steamer is. Many of the smaller class of vessel owners will no doubt be very glad to see this abuse done away with and all owners of steam vessels should join the movement to bring about the right to fuel when and where their best interests dictated. Freight only should be concerned with cargo, fuel being in the nature of supplies. As wel then might the hard coal shippers ask to furnish the entire requisition list, including provisions, ship chandlery, etc., before giving a vessel a coal charter, in fact if the fueling question is not soon set at rest shippers may want to manage the floating property from stem to stern while their coal is being transported from port to port.

### A WATERWAY TO THE COAST.

Among the many bills introduced in the last Congress looking towards deep water communication between the lakes and the coast, it may have been partly lost sight of that the President has authority under the joint resolution introduced in the Senate Feb. 8, 1895, to appoint a commission to make inquiry into the feasibility of constructing such a water-way.

The resolution authorizes the President of the United States to appoint, immediately after the passage of the act, three persons, who shall have power to meet and confer with any similar committee which may be appointed by the government of Great Britain or of the Dominion of Canada, and who shall make inquiry and report whether it is feasible to build such canals as shall enable vessels engaged in ocean commerce to pass to and fro between the great lakes and the Atlantic ocean, with an adequate and controllable supply of water for continuous use; where such canals can be most conveniently located, the probable cost of the same, with estimates in detail; and if any part of the same shall be built on the territory of Canada, what regulations or treaty arrangements will be necessary between the United States and Great Britain to preserve the free use of such canal to the people of this country at all times; and all necessary facts and considerations relating to the construction and future use of deep water channels between the Great Lakes and the Atlantic ocean. The persons so appointed shall serve without compensation in any form, but they shall be paid their actual traveling and other necessary expenses, not to exceed in all $10,000. The sum of $10,000 is appropriated with the passage of the act. The President may, in his discretion, detail as one of such persons an officer of the army and navy.

That such a waterway or ship canal will eventually be constructed is beyond question, whether for the good or ill of those now engaged in carrying on the lake commerce is another consideration; though from an engineering standpoint it will take years to complete it, yet it is safe to say that special tonnage, perhaps of a type or model not yet designed, will be found available to travel on both fresh and salt water as soon as an adequate waterway is thrown open to the world's competition.

The House committee on interstate and foreign commerce, to which the resolution, after its adoption by the Senate and introduction in the House, was referred, offered the following report:

"This resolution offers a practical way to enter upon a work that must commend itself to the House as being of the greatest national importance. The union of the Great Lakes with the seaboard by a deep waterway—one that will carry ocean-going vessels—has for years been a subject of discussion in conventions called especially for that purpose, and in the public press, and its importance in cheapening the cost of transportation between the interior of the country and the seaboard would be so far-reaching as to effect favorably every portion of the country.

"Statistics of lake transportation show that since the deepening of the channel between Buffalo, Chicago and Duluth, the cost of carriage by water over such route is on the average only one-ninth of the cost of carrying the same freight by rail. This saving in transportation charges by reason of the lake service, amounts in round numbers to $150,000,000 annually, and your committee believe that if such service can be extended to the seaboard that sum would be very largely increased.

"Your commitiee therefore recommend the passage of the joint resolution."

With such evidence as the foregoing in hand it is not likely that the lakes will remain isolated from the seaboard for a much longer period, even considering the enormous natural and we may say from a shipbuilding standpoint the artificial difficulties to be overcome in adapting steel ships to the dual ability and capacity for economical lake and ocean transportation, although perhaps even at this date the Manchester canal has done much to prove that limited waterways can be traversed by ocean-going craft.

### GENERAL AVERAGE.

There are a great number of shipmasters who have not a clear idea of the elements entering into a case of general average, although the rules appertaining to this feature of maritime lore are well established and of remote antiquity.

Mr. Justice Gray, in a recent decision, states: "As to the right, general average may be considered as resting, not merely on implied contract between the parties to the common adventure, but rather on the established law of the sea, in the light of and subject to which all owners of ships and cargoes undertake maritime adventures, so the authority of the master may be treated as resting either on implied contract of the parties, or on the duty imposed upon him by the law, as incident to his station and office, to meet the necessity created by an emergency which could not be foreseen or provided for, and to prevent the property in his custody and control from being left without protection and care.

"Sir William Scott, speaking of the powers and duties of the master, said: 'Though in the ordinary state of things he is a stranger to the cargo, beyond the purpose of safe custody and conveyance, yet in cases of instant and unforseen and unprovided necessity, the character of agent and supercargo is forced upon him, not by the immediate act and appointment of the owner, but by the general policy of the law; unless the law can be supposed to mean that valuable property in his hand is to be left without protection and care. It must unavoidably be admitted that in some cases he must exercise the discretion of an authorized agent over the cargo, as well as in the prosecution of the vooage at sea, as in intermediate ports into which he may be compelled to enter.' He illustrated this by the case of jettison to be contributed for in general average, by the case of ransom, and by the case of sale of perishable cargo in a port of necessity, and added: 'In all these cases the character of agent respecting the cargo is thrown upon the master, by the policy of the law, acting on the necessity of the circumstances in which he is placed.'"

It must not be assumed, however, that a compulsory jettison is at all times a voluntary one, for in order to constitute a good case of general average there must be a common danger to the ship in which the cargo, freight and crew participate, and the danger must be imminent, so that a voluntary sacrifice of a portion of the elements mentioned in the foregoing to save the remainder becomes a successful issue, and much depends on the latter alternative; that is to say, the voluntary act must perforce show, perhaps only in a degree, but nevertheless it is to be susceptible of bearing on the ultimate success of the voluntary act.

General average is an implied contract binding upon owners of ship, freight and cargo, and all interested therefore contribute pro rata to the risks or sacrifice.

Now let the Hydrographic Office or the Weather Bureau find why the water in Green Bay was never so low as at present. Capt. Ackerman of the Toledo & Ann Arbor car ferry, reports seeing the whaleback rock awash. This is said to be unprecedented, and the water on the Menominee shore is also reported four feet lower than at this time last year. These large sheets of water deserve every possible attention at the hands of the Federal government departments and their physical geography at least should by this time have been clearly determined.

LAST year 3,352 steamers of various nationalities passed through the Suez Canal. The traffic receipts for this net tonnage aggregating 8,039,106 tons amounted to $14,770,081. In 1891 4,206 steamers passed through the Canal while in 1874 only 1,264 vessels availed themselves of this short route to the East. By reason of the application of electric light nearly 95 percent of the vessels using the canal in 1894 were enabled to steam at night. Only five American ships passed the canal, and these were warships and yachts. The British ships numbered 2,394, of 6,009,902 aggregate tonnage; Germany sent 294 ships through; France 184, and Holland 188.

SHIPBUILDING experts in England point out the wonderful development in speed and machinery in the class of vessels known as torpedo boat destroyers. Since 1855, when the British decided to build boats 125 ft. long, and steam 20 knots, the speed has been going on increasing until fully 29 knots has been reached, the improvements by which this has been effected being due to the water-tube boiler and the introduction of steel in the construction of the engines, which has enabled the builders to very much increase the power without a corresponding increase of weight. The Boxer on the measured trial made 29,314 knots with an I. H. P. of nearly 5,000, and yet the total weight of machinery is only 115 tons. From

the experience gained by Messrs. Thorneycroft, they are of opinion that the speed has now approached measureable distance of that which propulsions by screws depending upon the reaction of water becomes inefficient.

WITH the opening of navigation rumors of labor troubles at Marquette, Escanaba, Chicago and other ports show that there is a dissatisfied clique among longshoremen who can not appreciate any change in the condition of affairs which may tend to decrease their earnings, although every other source of revenue has been curtailed to a greater or less extent during the past year. It is unfortunate, especially at this time, when commerce is sweeping along towards its former channels of volume and prosperity that there should be any setback from labor circles, as for instance, those who will not work themselves, refusing the right of others to do so. There has certainly been no time within the past decade when there was greater need for employer and employe to pull together in the right direction, it may also be said that the necessity for so doing was never greater from a monetary standpoint than it is at this time, and it is to be hoped that good business judgment, equity and a spirit of moderation will go far towards bringing about amicable relations on both sides.

## CASUALTIES OF THE WEEK.

The first active week of navigation starts in with the total loss of two boats—the steam-barges Sakie Shepard and A. Everett. The former foundered Saturday afternoon in Maumee Bay, five miles from Turtle Island light. One of her spars sticks out of water, and she may be raised. One of the crew, named Jones, was lost, and the others suffered severe hardships before they were rescued. The Shepard had a cargo of salt from Tawas for Toledo. She was owned by John S. Thompson, of St. Clair.

The steamer A. Everett, bound from Chicago to Ogdensburg with 48,000 bushels of corn, foundered about twenty miles above Point Aux Barques, Lake Huron, Monday night, as a result of her working in large masses of ice. The steamer sank slowly, and the Eber Ward had time to get alongside and take the crew off. The Everett was insured for five-eighths of her value. The cargo was insured for $26,190.

The steamer Yuma had seven plates on her stern damaged early this week. She ran into some ice, and her speed was thus checked until the Yukon, which she had in tow, collided with her. The Yuma is being repaired at the yards of the Cleveland Shipbuilding Co.

The steamer Parnell struck a sunken crib at Buffalo, on Wednesday of last week, and knocked a small hole in her bottom. This was promptly jacketed, and the pumps were set at work. The grain cargo was saved without damage.

The schooner Abbie L. Andrews ran into the tug Gee late last week, while towing down Niagara River. Her jibboom carried away the Gee's exhaust pipe, stack and whistle, and twisted her deck-house badly.

Numerous cases of grounding at Buffalo, the Welland Canal and Grosse Pointe, were noted during the week, boats being put to heavy expense for lighterage.

## PUDDLING DIRECT FROM THE BLAST FURNACE.

The works for puddling pig iron run directly from the blast furnace, put up at Hourpes in the center district of Belgium by Messrs. Bonehill, and now quite finished, and 100 tons of molten pig, the whole out-turn of the blast furnace, can be made into finished iron with the aid of the new process. Doubts have been expressed as to the feasibility and economy of this method; but the results obtained, which may now be considered as definitely acquired, have exceeded all expectations. It was thought that the sole of the furnace would not be able to stand the enormous heat given out by the incandescent pig, which is never allowed to cool down, a conclusive answer to which is given by the fact that repairs have not yet been found necessary to a single sole. Mr. Bonehill has taken out patents in the various iron making countries for his system, which may be described summarily in the following terms: The pig iron running from the blast furnace is received in a closed reservoir holding 35 tons, where it is maintained in a molten state by the combustion of gas from producers: and foundry ladles, holding half a ton or a little more, convey the charges to the puddling furnaces, which are fired by gas from producers attached to them. The operation is finished in about three-quarters of an hour, or half the usual time; and the waste in the furnace is comprised between 6 and 7%, the coal consumption being reduced to one-quarter that with the ordinary method. Common qualities of pig yield an excellent finished iron; and, including the economy of labor, the money saving effected by the new process is put, by the "Organe-Industrielle" of Liege, at 10s. per ton of puddle-bars produced.

## NEW LAKE TONNAGE.

The Bureau of Navigation, Treasury Department, assigned official numbers to the following lake built craft during the week ended April 20. Steamer Linden, 894 tons, Port Huron, Mich.; Zenith, 112 tons, Duluth, Minn, built at Benton Harbor, Mich.; Helen, 26 tons; Detroit, Mineral City, 58 tons, Detroit, built at Mt. Clemens, Mich.

## CHICAGO GETS IT.

Bids for the composite light vessel No. 66, to be stationed at Woods Holl, Mass., were as follows: Chicago Ship Building Co., $115,000; Chas Reeder & Son, Baltimore, $92,850; T. S. Marvel & Co., Newburgh, N. Y., $91,000; Pusey & Jones Co., Wilmington, Del., $86,000; John H. Dialogue & Son, $82,000; Atlantic Works, Boston, $77,800; George Warrington, Chicago, $64,500. The appropriation for this vessel is $70,000.

## STEAMBOAT INSPECTION.

Supervising Inspector John H. Galwey, of the Eighth District, has written letters to the local inspectors interpreting the new rules, which will probably be followed all over the lakes:

"A bell to be efficient within the meaning of the rule, shall be made of bell metal, should not be less than 14 inches in diameter and 10 inches in height and should weigh not less than 60 pounds."

The inspectors have also been advised that "except that as in the case of the spar or mast for carrying the stern range light, steamers may be allowed to proceed to the home port for the purpose of supplying the bell or mast."

## TENTH U. S. LIFE-SAVING DISTRICT.

The Muskallonge Lake Life-Saving Station 10th District located at Deer Park, Lake Superior opened the 28th inst., ten days later than last year with the following crew; keeper, J. H. Frahm; John Shelson, Chas. B. Duffey, Edwin Verburg, Malcolm Patterson, Bert O'Neil, Fred S. Small, Frank P. Lytle. The same crew manned the station last season. Wind signals will be displayed from the station watch tower 120 feet above water level beginning May 1st, telephone communication between Vermillion Point Station and Muskallonge Lake Station connecting Crisps and Two Heart River station thence to Newberry. This connection is of great importance to lake seamen and the general lake commerce.

## LAUNCH OF THE GRANADA.

Another successful launch is recorded from the shipyards of Capt. James Davidson, West Bay City, Mich.

On Wednesday, May 1, the large wooden steamer Granada slipped into the water in the usual style, Capt. James doing the honors.

The Granada is 255 feet in length, 41 feet beam, and 24 feet molded, or in other words, 21 feet depth of hold. She will have a capacity of 100,000 bushels of grain and is fitted with three masts, fore and main carrying fidded topmasts and the Mizen a pole spar.

This ship is one of Capt. Davidson's best, although he always builds his vessels of the best timber obtainable.

## RUST OF STEEL AND IRON.

Iron and steel with a perfectly bright surface do not rust in absolutely pure water or air, says L'Industrie; carbonic acid or some similar agent must be present. Moisture, carbonic acid and oxygen being present, oxidation is not produced so long as vapor of water is not condensed upon the surface of the metal. In rusting, carbonate of iron is formed, which is dissolved in the water charged with carbonic acid and transformed into bicarbonate. In the presence of air this is decomposed and gives magnetic oxide, then a hydrated oxide of iron. Polished iron and steel resist oxidation for a long time, but once started the rust forms rapidly and soon spreads over the entire surface. This is because the oxide of iron formed is electro-positive relatively to the iron and is very hygroscopic, facilitating the absorption of moisture from the air. Steel and cast iron rust more easily than the purer metal; the more pure iron is the more it is subject to oxidation. Phosphorus acts as a preserving agent. The alloys with nickel, cobalt and chromium are less readily rusted than common iron, while that with manganese is more so.

## FLOTSAM, JETSAM AND LAGAN.

The tug Heather Bell is finishing a thorough rebuild at Owen Sound this week.

The mast of the Sakie Shepard is sticking out of the water where she is sunk, five miles north of Turtle island, Lake Erie.

Work on the new aids to navigation in the vicinity of Death's Door, entrance to Green Bay, will commence as soon as navigation is fairly open.

Capt. W. W. Ward died at Dodgeville, Wis., last Friday at the age of 85 years. He sailed on salt water for 20 years and commanded lake craft for a considerable time.

Capt. Rosel Downer, the diver engaged by the Morton & Graham Co. to search for the Chicora, has had 18 years' experience as a submarine diver. In the same manner in which he expects to recover the Chicora's hull, he has located more than 100 vessels.

The prospect now is that the public steamboat dock which Mackinaw City has been working for since last fall will not be realized. The bonds advertised have promised to realize only 90 cents on the dollar, and the matter will probably be dropped for the present.

The steamer I. W. Nicholas built by the Cleveland Ship Building Co. for the Minch Line, led the fleet into Duluth, this season on Tuesday, April 30th. She encountered a field of soft ice off Stannard rock and heavy weather before rounding Keeweenaw point. The remainder of the fleet arrived directly after her.

Work is being pushed with vigor on the new Soo lock gates, The Detroit Bridge and Iron Works, which has the contract for the gates expect to complete the work soon. The floor work, under Contractor Martin Lynch, has been resumed and will be finished by July. Gearing & Son will commence work on the power house and office within a few days and will complete it by next fall.

Mrs. M. Conlan, of No. 35 Eldon Place, Vauxhall road, Liverpool, England, wants information of her son, Michael Sullivan or Conlan. He sailed on the lakes last season, bnt she has not heard from him in nine months and it is reported to her that he is dead. If any master, owner or vessel employe can furnish the information to this office, it will be forwarded to his mother.

Collector of customs at Bay City, Wilson, has made an application for numbers for four new boats he has just finished measuring. They are the following: Wooden propeller I. Watson Stephenson, built by Wheeler & Co., gross tonnage 623, net 499; tug Petrel at Au Sable, gross tonnage 63, net 48; propeller Norseman, rebuilt at Alpena, gross tonnage 659, net 501; schooner Granada, built by Capt. James Davidson, gross tonnage 1,753, net 1,685.

Signatures of vessel masters is being attached to a petition to the light-house officials of the Eleventh District favoring the establishment of range lights on Birch Point, west of Round Island, above the Sault. Ranges on Round Island Point do not, it is claimed, fully protect vessels from the danger of shoal spots in that vicinity. The proposed ranges on Birch Point would enable vessels bound down the river to take a course from Whitefish Point, which course would be parallel to the course now taken by vessels, but distant northeasterly therefrom about 4,000 feet. Descending vessels would come in on the Birch Point ranges to a point where the same intersects the present ranges on Round Island Point. Vessels would thus keep away from Point Iroquois, and would at all times when on the Birch Point ranges have at least 35 feet of water.

## APPOINTMENT OF OFFICERS FOR 1895.

GOODRICH LINE, CHICAGO.

| | MASTER. | ENGINEER. |
|---|---|---|
| Str. Virginia | H. E. Stines | Philip Roth |
| " Indiana | A. Gallagher | Ray Flint |
| " City of Racine | John Wilson | J. E. Parks |
| " Atlanta | Wm. Nicholson | W. H. Jerome |
| " Menominee | Wm. Flint | John Callan |
| " City of Luding'n | John Raleigh | Jules Bushman |
| " Chicago | George Witty | Felix Neidert |
| " Muskegon | Edward Carns | T. Dorey |

### LLOYD'S SHIPBUILDING RETURNS.

From the returns compiled by Lloyd's Register it appears that, excluding war-ships, there were 356 vessels, of 656,318 tons gross, under construction in the United Kingdom at the close of the quarter ending 31st March. The particulars of the vessels in question are as follows, similar details being given for the corresponding period in 1894 for the purpose of comparison:

| Description. | 31st March, 1895. | | 31st March, 1894. | |
|---|---|---|---|---|
| | No. | Gross Tonnage. | No. | Gross Tonnage. |
| STEAM. | | | | |
| Steel | 281 | 623,646 | 316 | 658,601 |
| Iron | 20 | 3,247 | 25 | 3,857 |
| Wood and composite | 9 | 1,712 | 5 | 938 |
| Total | 310 | 628,605 | 346 | 663,396 |
| SAIL. | | | | |
| Steel | 24 | 25,108 | 32 | 58,132 |
| Iron | 1 | 226 | 3 | 645 |
| Wood and composite | 21 | 2,379 | 33 | 3,035 |
| Total | 46 | 27,713 | 68 | 61,812 |
| Total steam and sail | 356 | 656,318 | 414 | 725,208 |

There has been very little change during the past three months in the total tonnage under construction in the United Kingdom. It will be observed, however, that there is a reduction of nearly 70,000 tons as compared with the returns of twelve months ago.

The following table gives the total figures for vessels now under construction in the principal shipbuilding districts of the United Kingdom as compared with those for the same period last year:

| District. | Description. | 31st March, 1895 | | 31st March, 1894. | |
|---|---|---|---|---|---|
| | | No. | Gross Tonnage. | No. | Gross Tonnage. |
| Belfast | Steam | 13 | 85 088 | 14 | 55,520 |
| | Sail | — | — | — | — |
| | Total | 13 | 85 088 | 14 | 55 520 |
| Barrow, Maryport & Workington | Steam | 5 | 5 851 | 7 | 11 746 |
| | Sail | 5 | 8 498 | 4 | 8 250 |
| | Total | 10 | 14 349 | 11 | 19 996 |
| Glasgow | Steam | 80 | 133 180 | 78 | 135 817 |
| | Sail | 8 | 4,340 | 13 | 15 920 |
| | Total | 88 | 137 520 | 91 | 151 737 |
| Greenock | Steam | 22 | 59 544 | 24 | 75 285 |
| | Sail | 5 | 8 380 | 15 | 25.456 |
| | Total | 27 | 67.924 | 39 | 100 741 |
| Hartlepool & Whitby | Steam | 18 | 49,566 | 19 | 52,860 |
| | Sail | 2 | 200 | — | — |
| | Total | 20 | 49 766 | 19 | 52 860 |
| Middlesbrough & Stockton | Steam | 21 | 60.497 | 28 | 57.005 |
| | Sail | — | — | — | — |
| | Total | 21 | 60,497 | 28 | 57 005 |
| Newcastle | Steam | 44 | 115.524 | 70 | 141 071 |
| | Sail | — | — | — | — |
| | Total | 44 | 115.524 | 70 | 141.071 |
| Sunderland | Steam | 36 | 91.086 | 47 | 107,951 |
| | Sail | — | — | — | — |
| | Total | 36 | 91 086 | 47 | 107 951 |

### BORING ARMOR PLATE.

The success attained of late in hardening the surface of armor plate has made it necessary to devise some especially effective method of boring holes in the plate for the bolts which are to hold it in position, says the *Scientific American*. A number of experiments have been made with the idea of softening a spot on a Harveyized plate large enough to allow a drill to pass through, but without weakening the place itself. The oxy-hydrogen blow-pipe has been used for this purpose, but without success. No method has been found entirely satisfactory until the attempt was made recently to soften a spot by employing an electric current. The successful method consisted in placing the two electrodes of a dynamo current on the surface of the plate a certain distance apart, so that the intervening part of the plate completed the circuit. The plate is found to offer enough resistance to become heated, in the part selected, to an annealing temperature. In practice it is found necessary to keep the electrodes cool by keeping water circulating in or around them. In order to prevent the plate cooling too rapidly after it has reached the proper temperature, the current is diminished very slowly, since the heat might otherwise escape into the other portions of the plate.

### A POWERFUL FIRE BOAT.

A new fireboat has just been launched at Boston, Mass., of the following general dimensions: 110 feet in length, 26 feet beam, 10 feet 6 inches deep, her extreme draught, with the engines in, will be 8½ feet. The most important part of her equipment is, of course, the fire pumps. which are very powerful ones. There are two of them, of the vertical fly-wheel, duplex pattern, with cylinders arranged for compound work, these being the first pumps which have ever been arranged in this way.

Each pump has a capacity of three thousand gallons a minute, at a pressure of one hundred and seventy-five pounds; so that when both the pumps are working the boat will throw twenty-five tons of water to a height of eighty feet every minute. The boat is fitted with fore and aft compound engines, eighteen and thirty-six by twenty-four feet, and two vertical boot-leg boilers with submerged smokeboxes. They are seven feet two inches in diameter, and will carry a pressure of 120 pounds. The boat has a bronze propeller eight feet in diameter and with a twelve-foot pitch. It is estimated that she will be able to steam thirteen or fourteen miles an hour.

### SINGULAR PROCEEDINGS.

Declarations were filed in the United States Circuit Court at Chicago, a few days ago, in two suits begun last fall against the bondsmen of Richard Rispin, who was Chicago manager of the Sun Insurance Co., of San Francisco, charging that he was defaulter to the sum of $20,000. At the time the suits were filed the alleged defalcation was not made public. Now it is charged that Mr. Rispin failed to make proper returns to the company. To the unbiased eye there is a complication in the case. The Sun did an extensive marine insurance business in Chicago, and according to the story of one of the bondsmen, Rispin cut the rates as did many of the other marine insurance managers and general agents. The company now purposes to make Rispin's bondsmen make up the difference between the rates as accepted and those scheduled. It is understood that Rispin has invited the suit so as to exonerate himself from charges of defalcation.

### ORDERS FOR THE ALMY WATER-TUBE BOILER.

The Almy Water Tube Boiler Co., Providence, R I., are building the following marine boilers: For the Bath Iron Works, of Bath, Me , two, with a combined capacity of 1,000 horse-power for a steam yacht building to the order of R. H. White, of Boston; two boilers with a combined capacity of 600 horse-power for the passenger boat running between Portland and Booth Bay; two for the Crescent Shipyard, of Elizabethport, N. J., 700 horse-power, for the first steam yacht built at these yards since Mr. Louis Nixon leased them; one for steam yacht Adelita, of Boston, 350 horse-power, N. C. Nash, owner; one for the George Lawley & Sons corporation, South Boston, of 450 horse-power for the yacht building for George Drexel, of Philadelphia. One for L. H. Tillinghast's steam yacht Aida, of Providence, 200 horse-power. One for C. A. Henry, of the Canadian Pacific Railroad, for his steam yacht for the St. Lawrence River, 80 horse-power. One now ready for delivery for George Vanderbilt's steam yacht Lucille, 140 horse-power. Also one for the Crane Mfg. Co., of Lakeport, N. H. They also delivered in March, boilers for three small passenger steamers, now building for the Pennsylvania Railroad, and one for a steam yacht, building at the Atlantic Works, East Boston, for Henry E. Converse.

### AUTOMATIC RELEASING HOOK.

The police boat Patrol, at New York, has been giving test exhibitions of the working of a recently patented automatic releasing hook for ships' boats. The hooks have been fitted to the davits of the Patrol and the test was made with the port boat while the Patrol was steaming at the rate of nine knots an hour. At first the hooks failed to act, but later experiments were more successful.

The hook is constructed of manganese bronze, and is of two pieces, connected by a strong brass pin or hinge. The bill of the hook is very heavy, and is built on such an angle that as soon as the weight of a boat or any body that might be attached to it is removed, the bill falls outward and the weight is released. The hook is particularly applicable for ships' boats, as the moment the boat touches the water the weight on the hook is released and the boat is afloat, released and free from the hook.

### BOOKS AND PERIODICALS.

Department Number 108, Part 3, U. S. Hydrographic Office, being sailing directions for Lake Huron, Straits of Mackinac, St. Clair and Detroit Rivers, and Lake St. Clair. It is the intention of the hydrographic office to publish a complete set of sailing directions for the lakes and the St. Lawrence River to Montreal, and so far there have been published parts 1, 2 and 3. This publication describes Lake Huron and connecting rivers in the same thorough way that characterizes all the work of the Hydrographic Office. The information has been obtained from many sources, and is not guaranteed correct in this first issue, but the portions found in error will be corrected as soon as discovered. Altogether the entire sailing directions, which will be finally published in one book will form a great help to shipmasters, as it is the most complete coast pilot ever printed. There is one feature which commends the work of this branch of the navy, their charts and books are compiled by sailor men for sailor men and deal directly with the subjects unhampered by much information useless to the mariner. Appended to the sailing directions is much useful information, such as the new rules of the road on the lakes, storm signals, rules for use of oil in storms, a chapter on currents. life saving service, and much general information and useful tables for sailors.

Beeson's Inland Marine Directory for 1895, the eighth annual edition of the work, is just from press. It is slightly increased in size over the edition of last year. The full page inserts or illustrations, to the number of a score or more, are printed on coated paper in art colors, a shade of marine blue verging on purple, others in what is known as bronze sienna and others in woodcut umber, giving to the work a rich and handsome appearance. While a number of the subjects of illustrations have appeared in former editions or other works, some are new and interesting. The miscellaneous contents of the work are much better selected and cover a wider field of information than in any former year. Prominent among the new features is the list of the wrecks and important casualties for the year ending March 1, 1895, with a brief description of each, statement or loss of property or life, etc., alphabetically arranged so that reference may be had instantly to any casualty. Articles, in each instance illustrated, relative to signaling weather predictions by search light and to the life-saving service are worthy of mention. The new Pilot Rules approved February 8, 1895, and known as the White bill, which took effect on and after March 1, are printed in full, occupying some half dozen pages. A careful page to page comparison of the work with that of last season shows that in the matter of the compilation of the vessel lists and in its entirety, the work is materially improved. The usual amount of advertising patronage has been bestowed upon its pages, and as to the advance sales of the work, the changes in laws, rules and regulations have made it essential for all old subscribers, such as masters, mates, engineers and pilots who use the work for reference, to have the 1895 copy of this annual. One of the last mail orders received by the publisher before going to press was a dozen copies for one firm alone, viz., the Northern Steamship Co., Buffalo. Such an order speaks well for the circulation of the work.

In the preliminary trial of the new U. S. steel harbor defense ram "Katahdin," at Booth Bay, Me., a speed of 17 knots was maintained, and the builders believe she will make 18 knots on the official trial. The boat is designed to be exceedingly sensitive to her helm, and she turned within less than twice her length, says the report. The keel of the "Katahdin" was laid in 1891, at Bath, Me. She is 250 feet 9 inches long on the water line; 43 feet 5 inches beam; 15 feet mean draft; 2,183 tons displacement. The engines are twin screw, vertical, triple expansion, with a maximum 1. HP. of 4,800. The side armor is 6 inches, diminishing to 3 inches at the ends; the conning tower has 18 inches of armor with 6 inches on the smokestack and ventilators. The contract price of this ram was $930,000.

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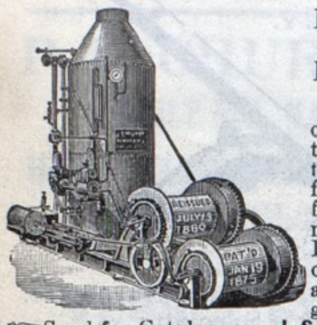

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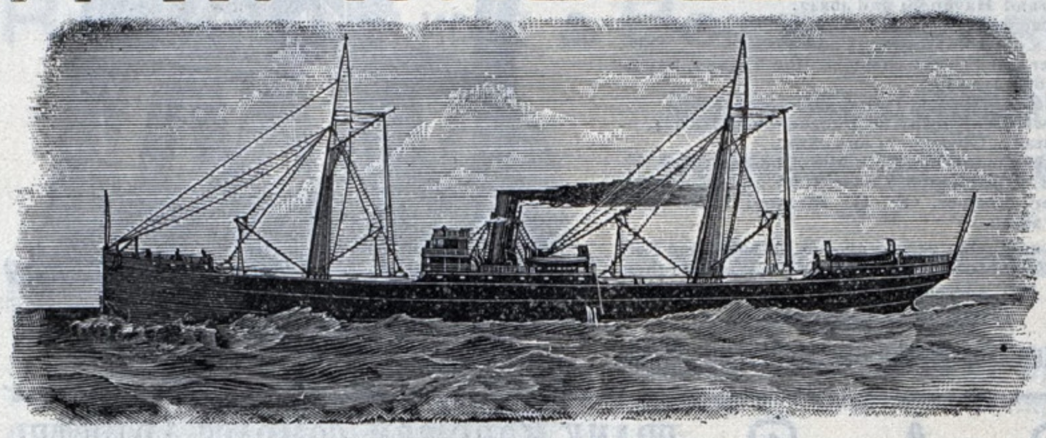

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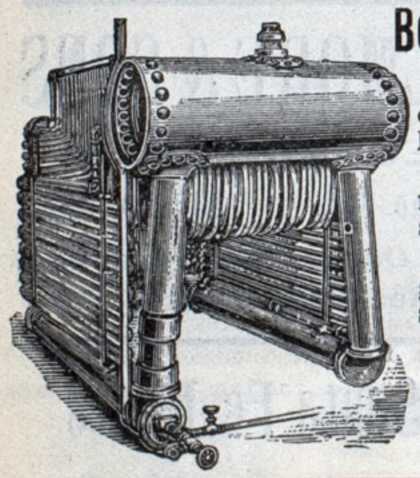

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**Marine Valve, Renown Engine, Eldorado Engine, Crank Case, Victor Signal, Dark Lubricating, Mineral Seal, Head Light, Arctic Cup Greases, and Lard Oils,**

—CARRIED IN STOCK AT THE—

## Standard Oil Company's Marine Depot,

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TELEPHONE 77. MAIN OFFICE TELEPHONE 682.

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Buffalo, N. Y.
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## THE MARINE BOILER COMPOUND.

Before you buy a boiler compound inquire which is the best on earth to remove scale and to keep the boiler from scaling and water from foaming. Any one who has used it will refer you to the MARINE BOILER COMPOUND, manufactured by

**A. J. HELBING & CO.,**

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**SHIP-BUILDERS,**

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Wooden Ships of any description built, rebuilt, or repaired.

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Bronze, Brass and Zinc Brazed Tubes.

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ESTABLISHED 1871. INCORPORATED 1893.

# MONTAGUE IRON WORKS CO.,

MANUFACTURERS OF

## Marine and Stationary Engines

**AND BOILERS OF ALL KINDS.**

MONTAGUE, MICH.

Heavy Castings a Specialty. Prices Quoted on Application.

Fore and Aft Compound Marine Engines.

The Engines in the following boats are of our manufacture.

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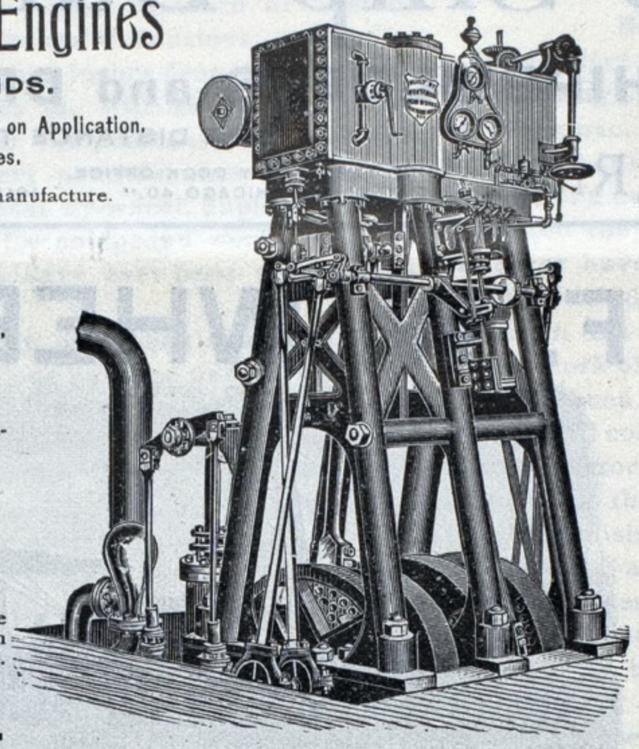
Passenger and Freight Steamer, Mabel Bradshaw, Muskegon, 16 and 28x26.
Ionia, Grand Haven, 24 and 46x42.
Survey Steamer, W. S. Hancock, 12 and 21x20.
Mark B. Covell, Manistee, 18 and 30x26.
Passenger and Frieght Steamer, Bon Voyage, Saugatuck, 16 and 30x26.
Tug, Hunter, Chicago, 15 and 28x22.
Tug, Edward G. Crosby, Muskegon, 16 and 30x24.
Oval Agitator, Chicago, 14 and 28x20.
Tug, Peter Coates, Sault Ste Marie, 10 and 20x16.
Luella H. Worthington, Cedar River, 19 and 36x30.
Passenger Steamer, E. G. Maxwell, Pentwate 14 and 28x20.

The engraving represents our 20 and 36x36 Fore and Aft Compound Marine Engine. We build them all sizes and guarantee them to give satisfaction.

Prices furnished on application.



**Montague Iron Works Co., Montague, Mich.**

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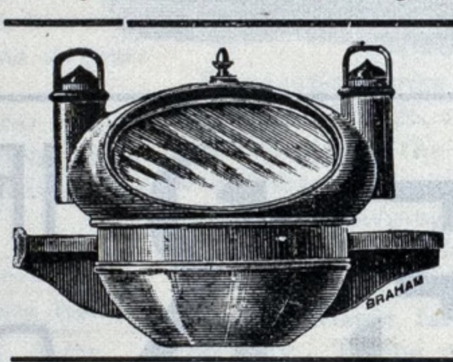


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**NAUTICAL INSTRUMENTS.**

**COMPASSES. BAROMETERS, PATENT LOGS, BINNACLES, STEAM GAUGES, MARINE GLASSES, ENGINE INDICATORS.**

All Nautical Instruments Carefully Repaired.

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## *WRECKING.*

**TUG SWAIN STATIONED AT MACKINAW CITY.**
**TUG CRUSADER STATIONED AT THE "SOO."**
**TUG CHAMPION STATIONED AT DETROIT.**

***ALL WITH WRECKING OUTFITS ABOARD.***

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Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready.

**TUG MONARCH**—Engine Compound, Cylinder 16 & 30 in. diameter, 30 in. Stroke, Steam Pressure allowed, 125 lbs.

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CENTRIFUGAL PUMPS. SEVEN AND FOURTEEN INCH SUCTION.

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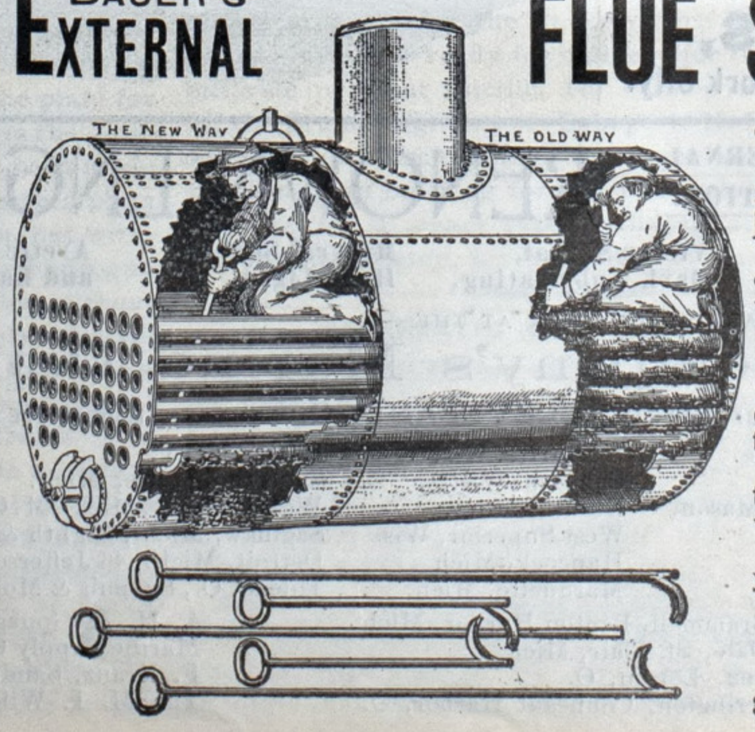
# EXTERNAL FLUE SCRAPERS.




THE only device that will effectually **remove Scale** and **Sediment** from Flues **without injury** to flues or boiler.

Made of tool steel, hardened, concaved and ground, producing two sharp edges, and can be worked either way.

**A Set will last about 10 years.**

Used in **more than 90 different cities** and give **universal satisfaction.**

A **Shell Scraper** and a **patented inside flue cleaner** given with each set.

Send **outside diameter** of your flues for a trial set.

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Sole Manufacturer,

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**PATENTED.**

**AGENTS WANTED.**

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Send Stamp for Catalogue.

Mfrs. Yacht, Boat and Canoe Hardware.
Special Work a Specialty.
Boat Rails, Stanchions, Etc.

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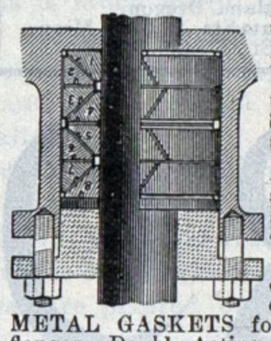

for Piston Rods, Valve Stems, Etc., of every description, for Steam Engines, Pumps, Etc. Adopted and in use by the principal Iron Works, Steamship Companies, Mills and Engine Builders, Electric Light and Power Plants within the last twelve years in this and foreign Countries. Also FLEXIBLE TUBULAR METALLIC PACKING for Slip-Joints on Steam Pipes and for Hydraulic Pressure. Also METAL GASKETS for all sizes and shapes of flanges. Double-Acting Balanced Water-tight Bulkhead Doors for Steamers. Also Agents for the McColl-Cumming Patent Liquid Rudder Brake.

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Runs its trains over its own tracks from Chicago and St. Louis

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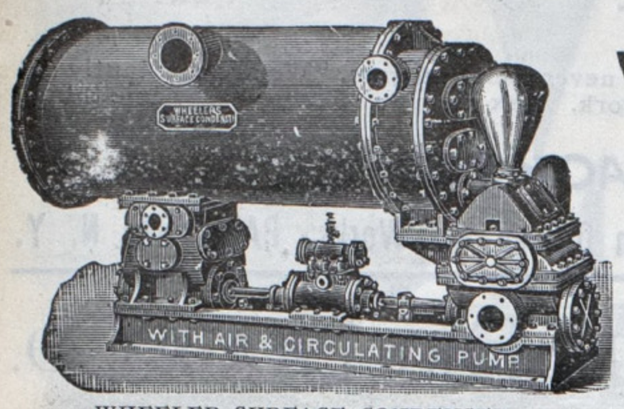
Mounted upon Combined Air and Circulating Pumps.




WHEELER SURFACE CONDENSER,
Mounted on Combined Air and Circulating Pumps.

Sole Proprietors and Manufacturers of the
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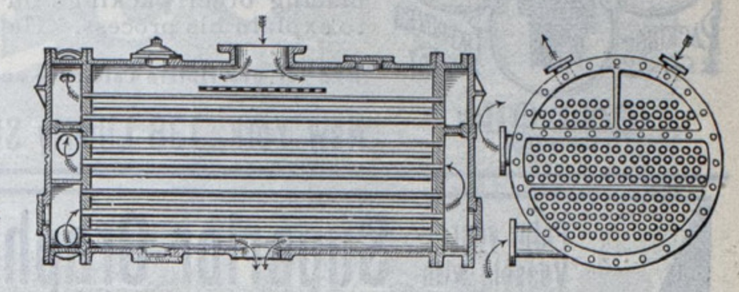
**Send for Pamphlet, "Machinery for Small Boats, etc."**



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GENERAL JOBBING WORK DONE PROMPTLY.

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Depot foot of South Water St. City Ticket Office, 137 Superior St.

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| Akron & Canton | *6 30 p m | *7 10 a m |
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### Excursion Rates to Michigan.

The Nickel Plate Road offers one fare rates to designated Michigan points on May 7th, account Land Seekers' Excursion. Write for particulars. 232

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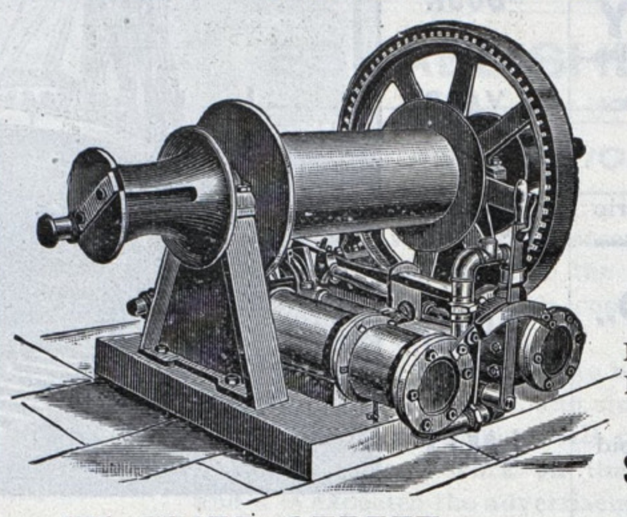
## RIVER MACHINE & BOILER WORKS



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MARINE AND STATIONARY ENGINES, BOILERS, AND DECK HOISTING ENGINES.

Starting, Stopping, Reversing and Lowering all done by working one Lever.

SOLE AGENTS FOR

St. John's Self Adjusting Cylinder Packing.

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WRITE FOR PARTICULARS
POWELL'S STAR VALVE.
FOR
MILLS - FURNACES - FACTORIES - STEAMBOATS AND ALL FIRST CLASS JOBS.
CAN BE REGROUND WHILE IN POSITION ON STEAM PIPES.
THE WM. POWELL CO. CINCINNATI, O.

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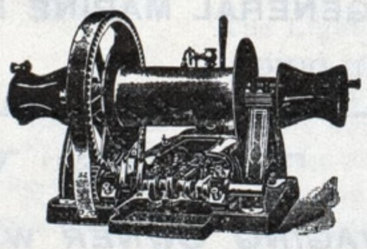

## JACKSON & CHURCH,

BUILDER OF DUPLEX HOISTING AND DECK ENGINES.

Plain Finished and Automatic **ENGINES,** From Heavy Patterns at Moderate Prices.

Vertical, Horizontal, Marine and Locomotive **BOILERS** Strictly First-Class and Highest Test.

SEND FOR CIRCULAR AND PRICES. **SAGINAW, MICH.**

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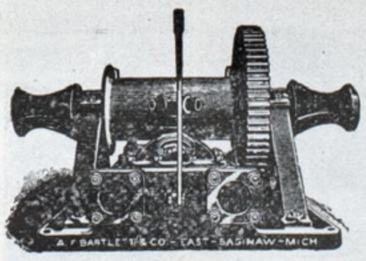
## BARTLETT DECK HOIST.

In use on the ollowing vessels: Steamers—Roumania, Bulgaria, Germanic, Brittanic, George G. Hadley, S. S. Wilhelm, Majestic, Alex. Nimick, John Harper, Walter Vail, Panther, City of Berlin, City of Paris, City of Glasgow, City of London. Schooners—Tokio, Asiatic, Baltic, Celtic, Aberdeen, William D. Becker. Stopping, Starting, Reversing and Lowering, all done by working one lever.




**A. F. BARTLETT & CO., - East Saginaw, Mich.**

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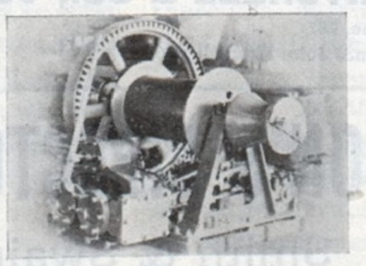
## DECK AND DOCK HOISTS



Our Hoists will be found on the following boats: Tugs—Sweepstakes, Winslow, J. K. Emmett, Acme, Waldo Avery, A. Sumner, Charlton, Reliance, Howard, Duncan City, Chamberlain, Balize, Sampson, Westover, Gladiator, W. B. Castle, Robert Weideman, Boscobel, Peter Smith; Barges—Jenness, Manta ee, Oquebay, Polly; Propellers—J. J. McWilliams, J. W. Stephenson; also in use by F. W. Wheeler & Co., W. B. City, Mich., Blood and Hart, Marine City, Mich., Michigan Salt Works, Marine City, Doty Bros., Pile Drivers, Toronto, Canada.

**MARINE IRON CO., - - Bay City, Mich.**

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## PROPOSALS.

U. S. ENGINEER OFFICE, 349 Carondelet St., New Orleans, La., May 6, 1895. Sealed proposals for coffer-dam, excavation and piling foundation for lock at Plaquemine, La., will be received here until 12 o'clock noon, June 6, 1895, and then publicly opened. Information furnished on application. JAMES B. QUINN, Major, Engineers. 19-22

TREASURY DEPARTMENT, U. S. LIFE-SAVING SERVICE, Washington, D. C., April 18, 1895. Sealed proposals will be received at this office until 2 o'clock p. m., of Tuesday, May 7th, 1895, for the construction of twelve 26-foot Monomoy surfboats, six to be delivered in Buffalo, N. Y., and six in New York City. Proposals for either or both lots of boats will be considered. Plans and specifications, together with full information and blank forms of proposal, can be obtained upon application to this office, to the Inspector of Life-Saving Stations, 24 State Street, New York City, or the Superintendent 9th Life-Saving District, Buffalo, New York. S. I. KIMBALL, General Superintendent. 17-18

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## Flint & Pere Marquette Railroad.

THE

**"SAGINAW VALLEY ROUTE"**

FROM

DETROIT AND MONROE

HAS

**The Best Train Service and Closest Connections**

for all Northern Michigan, Milwaukee, Wisconsin and beyond. Write for a Folder.

**A. PATRIARCHE, Traffic Manager,**

SAGINAW, MICH.

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141 Superior St., CLEVELAND, O.

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| N. Y. & Pitts. Exp | *8 15 a m | *7 00 a m |
| Pitts. Accom | †11 15 a m | †1 45 p m |
| New York Sp'l & Pitts. Exp. | *1 00 p m | *8 45 a m |
| Special Pitts. Express | *2 50 p m | *10 30 a m |
| Pitts. Exp | *4 00 p m | †8 50 p m |
| N. Y. & Pitts. Exp | ..... | *6 00 p m |
| Pittsburg Express | *11 15 p m | ..... |

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The short and direct route to Pittsburg, Washington and Baltimore. Only 3 hours and 35 minutes to Pittsburg, four trains daily.

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The rearrangement of the dining cars on the Nickel Plate Road provides breakfast and dinner on the New York and Boston Express No. 2 eastbound, breakfast and dinner on the Fast Western Express No. 5, and dinner on No. 6. This newly established service not only accommodates the through passengers of that line more satisfactorily, but provides a better arrangement for its local patrons. 234

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**FOR STEAM, WATER AND AMMONIA.**

Not having been subjected to the injurious chemical action of boiling oil, outlast all others, and never melt and gum. We are constantly displacing other packings on Lake and Ocean Steamers, and can guarantee our goods for marine work. Ask the man offering "the same thing" to explain his process. He boils his goods in oil.

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**CRANDALL PACKING CO.**

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Paint your Vessels with **Superior Graphite Paint**

NO BLISTERING, CRACKING OR SCALING.

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Strictly anti-rust, and most durable and economical.

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**DEALERS IN COAL.**

Docks at Government Pier, Whiskey Island, and Adjoining Globe Dry Dock.

All fully equipped with Revolving Derricks; also, Lighter Carrying Derrick, and One Hundred Two and One-Half Ton Buckets.

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Docks at SANDWICH, ONTARIO, opposite the Fort at Detroit, with chutes for rapid fueling. Elevated docks and derrick at AMHERSTBURG, ONTARIO.

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Four Chutes and Low Dock.

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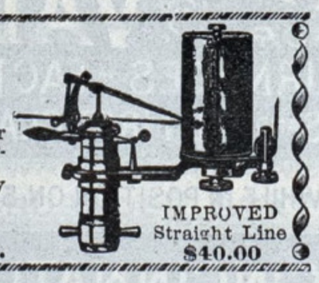
$85.00 for an Indicator when you can get either of these for $40.00, packed in finest cases, finest workmanship, finest material, and the **best** designs.

Send for circular of Reducing Wheels, Planimeters, Three-Way Cocks and 25 other high grade specialties.

**HINE & ROBERTSON CO.,**
**Cortlandt St., New York.**

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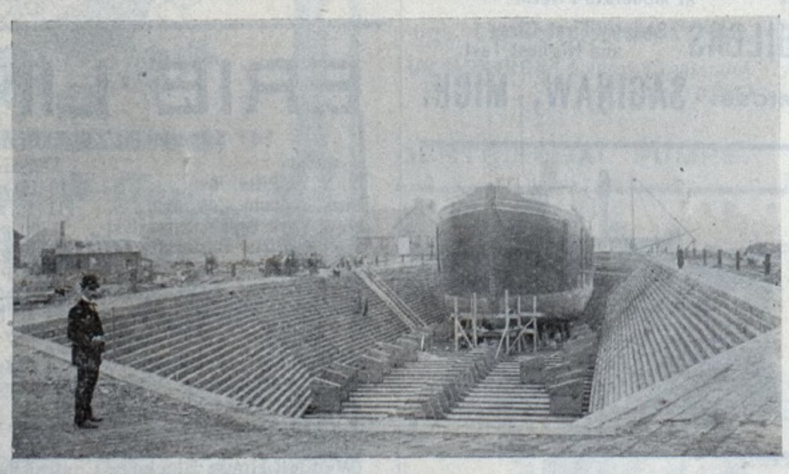
Plates and Material Constantly on Hand to Repair all Kinds of METAL SHIPS in shortest possible time.

PHOTOGRAPH OF 300 FT. BOAT IN DOCK.



Best Quality of OAK in stock for Repairing Wooden Vessels.

## LARGEST DRY DOCK ON THE LAKES.

**PRICES FOR REPAIRS AND DOCKING, SAME as at LOWER LAKE PORTS.**

**SUPERIOR, WIS.**

Steel and Metal Ships of all classes Built on Shortest Notice at our Yard at W. Superior, Wis., and also at our Ship Building Yards at Everett, Wash.

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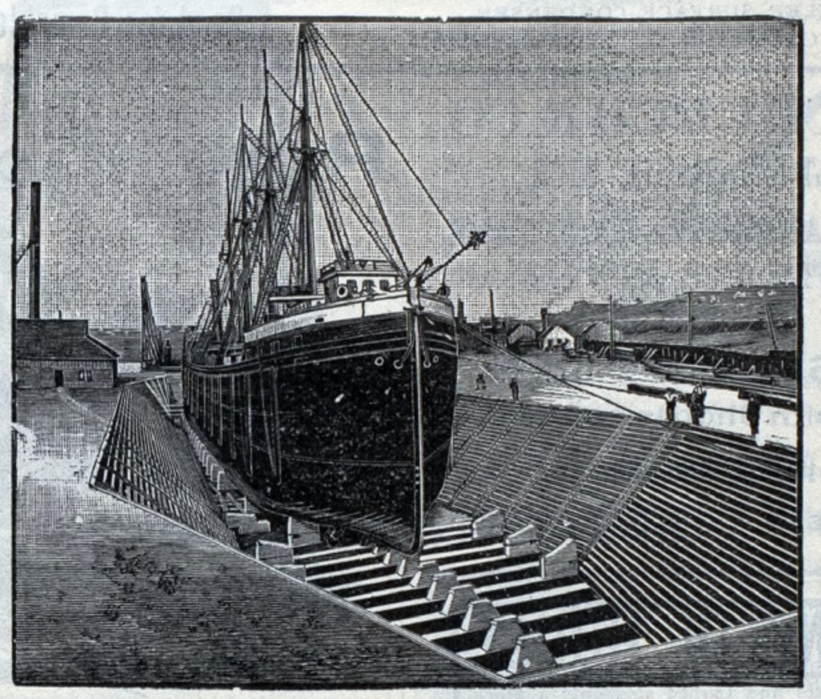
## THE SHIP OWNERS DRY DOCK CO.

Largest DOCK YARD on the GREAT LAKES.



Capacity with Two Docks to Dock the Largest Ships on the Lakes.

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Being equipped with Lucigen Lights we can do work at night as well as day.

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N. B.—Special attention given to chartering vessels.

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